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☆ ☆ ☆

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No. 1

A MORE PRACTICAL PSYCHOLOGY.

PSYCHOLOGY has been defined as a scientific study of mental processes. It has for its subject-matter all processes that affect and condition consciousness, and it presupposes uniform laws of activity. During the past few years there has been developed a so-called "new psychology," which, among other things, has emphasized the study of mind through a careful inquiry into the structure and function of the nervous organism. This phase of the new psychology has added much to the data of physiology and neurology, but not so much has been accomplished toward the determination of the real nature of mind.

It is the opinion of the writer that so far as it concerns the masses, who have time for only a brief course, the study of psychology must be made more practical if the greatest possible good is to be accomplished. It is not so much a question of what mind is as what it does under ordinary conditions, and what can be accomplished by scientific mental discipline. Hundreds of rats, dogs, rabbits and other dumb animals have been tortured and dissected alive in order to discover, if possible, the exact nature of the human mind. But it seems to me that such practice is about seventy-five per cent pure foolishness so far as its avowed purpose is concerned. The human mind, so far as being is concerned, is infinite, and to understand it would be to understand all mystery.

What the majority of persons here on earth most ardently desire is long life and the pursuit of happiness of some kind. The psychology that will lend itself to the accomplishment of these ends, aiding at the same time in an effort toward higher and nobler living, is what I mean by a more practical psychology. So-called knowledge is of little use and has less meaning if it is not seen in its relation to the self. A correct method of studying psychology should open up to the mind of the individual the problem of the self and show him that nothing can have vital meaning to him un-

less it is related to self expression. Herein lies a hint at the secret of making a subject that is dry and insipid one of deep interest and real worth.

Psychology, then, becomes not merely a study of mental processes, but a study of my mental processes; not only a study of consciousness, but a study of my consciousness. In other words, it must become introspective. Whether the result begets the tendency to sordid pessimism or healthy optimism depends somewhat on the method of procedure.

Let us suppose the case of the mental life of the average farmer. There is a tendency toward a narrowing and a weakening of the mental activities, on account of the many hours given to manual labor and the few to reading and reflection. But why is it not just as important for the farmer to know how to raise a good crop of wholesome, life-giving ideas as to produce a good yield of corn? Or, why should he not be interested in knowing how to get rid of a noxious thought or mental habit as well as a noxious weed? A practical knowledge of mind, of how it operates and how it may be operated, ought to aid in both of these matters. If, for instance, one understands something of the laws of mental habit, how such habit may be formed and broken and reformed, he will do much toward revivifying his mind and making his life happier. If he is led further and sees the real relation of mental act to physical act—that the former is the generator of the latter—he will be ready to break away from the idea of predestination and to see that man's earthly destiny is given chiefly into his own hands. Such a person will soon begin to rise above his environment and to become master of the situation that formerly threatened him with defeat. Here, again, is what I mean by practical psychology. It must reach the individual who is down and show him how to rise by giving him a knowledge of his true self.

What makes this world so dreary for many of its inhabitants is the poverty and meanness of their every-day thoughts. They lack spontaneity. They live a life of shreds and patches simply because they do not know how to organize their mental forces in such a way as to make them productive of life-giving thought. Practical mind training ought to bring about this better result. Moreover, the one who has such discipline will naturally have these things added unto him: (1) A better understanding of others, and of human nature in general. (2) More sympathy for

others, because of a better understanding of the obstacles that stand in the way of the progress of every really earnest soul. (3) He will think of people in terms of mental conduct rather than in terms of physical conduct, and thus become a student of motive. (4) Other things being equal, the man of well-organized mind is physically stronger and has greater power of endurance than his weaker-minded brother. (5) Because of his systematic, well-directed mental discipline he will meet with greater success in his chosen vocation and will thereby become a worthy member of society.

I am well aware that these views are not held by all; but the opposition to them comes chiefly from those who have either never taken a course in psychology at all or who have never made a very serious study of the subject. However this may be, the systematic study of practical psychology promises much for the student of the future.

W. A. MCKEEVER.

FEEDING WHEAT.

WHEAT at present prices of feed is theoretically worth, for equal weights when all its constituents are considered, fifteen per cent more than corn, five per cent more than bran and seven per cent less than middlings.

The results in feeding vary widely, some good feeders report making twice the gains from wheat as from corn, and other equally careful feeders reporting only half the gains from wheat that they obtained from corn. Some feeders have found wheat a satisfactory feed for all kinds of farm stock. Other feeders are successful in feeding wheat to one class of farm animals but fail when feeding it to others, so that there are both successes and failures in feeding wheat to horses, steers, dairy cows, growing cattle, and hogs.

The experiment stations have not made a sufficient number of feeding tests with wheat to present conclusive results. The general results obtained by what feeding the stations have done show wheat to be about equal to corn for most feeding purposes when fed by ordinary methods, with greater difficulty in keeping animals on feed with wheat. Conclusions in regard to the feed value of wheat and the best methods of feeding it must be drawn chiefly from observations made from ordinary farm feeding.

Wheat has smaller kernels than corn and for this reason is more liable than corn to be swallowed without being well masticated. The bulk of Kansas wheat is the hard Russian wheat, which this year is unusually hard. Wheat is a palatable feed for all kinds of stock but has the disadvantage of forming a pasty mass if eaten alone, especially when ground. Wheat contains about fifty per cent more digestible protein than corn, slightly more carbohydrates and a little more than one-third as much fat as corn.

General observations show that wheat should be fed whole to sheep and coarsely ground for all other kinds of farm stock. Soaking twelve to twenty-four hours is considered next to grinding, but most feeders have found soaking unsatisfactory.

Every trial shows better returns when wheat is mixed with some other grain than when fed alone, although if prices permit it wheat may profitably form four-fifths of a grain ration. Mixing with other grains overcomes the tendency to form a pasty mass.

Care should be used in getting animals on wheat. Only a small quantity should be fed at first, mixed with the grain which the animals fed have been eating. The amount of wheat fed should be slowly increased and the proportion of the other grains decreased. When wheat forms not over half the grain ration we advise taking ten days to work up to full amount, and when wheat forms the greater part or the whole of the grain ration take thirty days to reach full feeding. Wheat is usually condemned by new feeders because they get their animals on feed with it too quickly.

Judging from our experience with other feeds, the best returns with the least disturbance in feeding will be secured in feeding horses and cattle by mixing the wheat with about three pounds per head per meal of whole hay or straw, mixing in such a manner that each mouthful taken will consist of part wheat and part roughage.

Many farmers have had good results in feeding whole wheat to horses doing heavy farm work; many more have found it necessary to grind wheat in order to keep horses in good condition. With the thermometer standing at one hundred four degrees in the shade, the writer recently drove twenty miles behind a team that had been fed no other grain but whole wheat for four weeks. The team made good time and stood the trip well, showing the favorable effect of wheat feeding under trying conditions.

At the North Dakota Experiment Station horses doing farm work kept up in flesh on less than sixteen pounds of whole wheat per head a day, but it was with difficulty that they were kept from getting off feed. The conclusion was drawn from the test that it was not advisable to feed wheat alone as a grain ration for horses, and the less expert the feeder the greater the risk. A mixture of one part bran and two parts ground wheat, by weight, was found to be worth more than whole oats.

Kansas farmers have obtained good results in feeding farm teams ground wheat mixed with either bran, corn-meal, ground barley, ground oats or ground Kafir corn, and the wheat may form from one-half to four fifths of the mixture.

The Ohio Experiment Station tested for two years the value of ground wheat compared with corn-meal for fattening steers. The ground wheat showed slightly better results the first year and the corn-meal the second year. The two experiments indicate that the value of the two feeds for fattening steers is about equal when both are mixed with other grains.

Feeders report ground wheat as an excellent feed for growing cattle, but when fed alone is not a satisfactory feed for fattening steers, the tendency being to cause growth rather than fattening. This may be overcome by mixing the wheat with equal parts of corn, Kafir-corn or barley.

Almost without an exception dairy-men report ground wheat as a good milk-producing feed. This is easily explained by the fact that wheat contains more protein than the other grains produced on the farm. Alfalfa twenty pounds, wheat four pounds and Kafir-corn or corn three pounds will make a good milk-producing ration for the average cow in full milk. With roughage such as prairie hay or corn fodder the amount of wheat will have to be increased, and the best results will be obtained by substituting soy beans, cottonseed or oil meals in the place of the Kafir-corn. Some farmers will have no other roughage this winter but wheat straw. With all the wheat straw a cow will eat, seven pounds of wheat and four pounds of cottonseed meal will make a fair ration. It will take thirty days to get a cow safely on such a ration.

At the Kansas Experiment Station, in one experiment fattening hogs made fourteen and six-tenths pounds gain per bushel of ground wheat, twelve and eight-tenths pounds gain per bushel of ground corn and ten and eight-tenths pounds per bushel of

ground Kafir-corn. In another experiment corn-meal and ground wheat mixed in equal proportions made better gains than either of the feeds alone. In both of the experiments the grain was mixed with water at the time of feeding.

At the Missouri Experiment Station, when fed to pigs, one bushel of ground wheat soaked made thirteen and two-tenths pounds gain, one bushel of ground wheat made twelve and six-tenths pounds gain, one bushel of whole wheat made eleven and four-tenths pounds gain, and one bushel of corn made ten and three-tenths pounds gain.

At the South Dakota Experiment Station the gains in fattening hogs per bushel of feed were, whole wheat twelve and two tenths pounds, ground wheat twelve and five-tenths pounds and corn-meal twelve and two-tenths pounds. The best gains were made where wheat was mixed with some other feed.

At the Oregon Experiment Station a bushel of ground wheat made twelve and nine-tenths pounds gain on fattening pigs while an equal weight of a mixture of two parts wheat, one part shorts and one part oats, all ground, made a gain of fourteen pounds.

At the Wisconsin Experiment Station the average of four experiments showed that for fattening hogs corn-meal and ground wheat are practically equal, and that a mixture of the two in equal parts made a saving of about three per cent in the amount of feed required. One bushel of wheat gave about twelve pounds of gain on fattening hogs. Whole wheat, both dry and soaked, was unsatisfactory. The best results were obtained by grinding the wheat and moistening it with water or milk at the time of feeding.

Kansas farmers report ground wheat as better for growing pigs than corn and many recommend it highly for the brood sow while suckling, as they find it a good milk-producing feed. At fattening time it should be mixed with corn, Kafir-corn or barley, as wheat alone tends to make the animal grow instead of fatten. The pork from wheat alone is not as firm as that from corn or Kafir-corn.

In considering wheather it is best to buy wheat or corn, it should be remembered that a bushel of wheat weighs seven per cent more than a bushel of corn.

H. M. COTTRELL.

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LOCAL NOTES.

The Board of Regents will be in regular session this week.

Miss Harriet Howell is temporarily quartered with the family of President Nichols.

The College flag was at half-mast for several days last week in honor of President McKinley.

The October meeting of the Manhattan Horticultural Society will be held on Thursday, September 24.

Prof. Edith A. McIntyre has rooms with Mrs. J. J. Davis, corner of Juliette avenue and Houston street.

Miss Hetty G. Evans, the new assistant in Industrial Art, has engaged lodging with the family of Doctor Little.

Doctor Mayo and family will occupy the middle one of the Dewey residences at the corner of Poyntz and Juliette avenues.

Professor Goodell and family have returned from their visit in Indiana, and moved into the new Griggsby house on west Houston street.

Professor Clure and family have moved into the north wing of the new Dewey residence at the southwest corner of the high-school block.

Professor Roberts and wife have moved into the south apartment of the new Dewey residence at the southwest corner of the high-school block.

The carpenter shop has been somewhat rearranged during the summer and its walls and ceiling brightened up by a liberal coat of paint and kalsomine.

Miss Gertrude Williams, of the chair of Physical Training, will not be with us this year. A telegram was received on September 17 announcing her resignation. Another director will probably be called by the Board of Regents during their session this week.

The Y. M. C. A. and Y. W. C. A. of the College have issued and distributed a neat little pocket guide for old and new students. It contains a city church and business directory, a calendar, a map of the city, a colored McNally map of the State, and a number of blank pages for notes.

Prof. and Mrs. B. S. McFarland returned last week after having spent the summer at their home in Olathe. They will reside again this winter in the Campbell house, on Colorado street.

The new U. P. railroad depot will be a beauty, of stone and brick, and the neatest depot between Kansas City and Denver; but many citizens do not like its location. It is being built directly north of the Rock Island railroad crossing.

Capt. Ralph Harrison, formerly instructor of military science in this College, who has been recruiting through Missouri with headquarters in St. Louis, has been ordered to join his regiment in Cuba. Mrs. Harrison and children will go to relatives in New York.

As will be seen from the College directory on the inside of the title page, the Board of Instruction has undergone several changes during the summer. The next number of the INDUSTRIALIST will contain an article introducing the newly engaged instructors to our readers. The article was unavoidably crowded out of this issue.

A patriotic service in remembrance of our stricken President was held at the Presbyterian church Sunday evening. President Nichols, of the Agricultural College, S. W. McGarrah, of the *Nationalist*, and Hon. Sam Kimble delivered addresses. The music was very appropriate and was under the supervision of Professor Brown.

The vacancy in the Experiment Station force caused by the resignation of R. W. Clothier, '97, as assistant chemist, has been filled by the appointment of Mr. F. C. Weber, B.S., a graduate of Ohio State University. Mr. Weber has had considerable experience in chemical work, and took up his duties here early in the month with every prospect of success.

Over two hundred volumes were sent to the bindery for the Experiment Station library last week. These consisted chiefly of the publications of the experiment stations of the several states, and of the department of agriculture, and some of them have been collected with great difficulty. They will form a valuable addition to the reference material for students of agriculture.

Mr. August Ohst, of Alma, who some years ago frescoed our chapel, has been at work for several weeks this summer upon the interior of Domestic Science Hall. All of its rooms have been neatly and tastefully frescoed in water colors and decorated with suitable friezes. It is safe to say that the rooms of Domestic Science Hall are now the neatest educational quarters in the State.

The new cattle shed and double corral between the old and new barns, which were built during the vacation, are models of their kind. The structure is about two hundred and sixty feet long and twenty feet wide. The roof is covered with ten-inch roofing

boards and three-inch battens, neatly painted. The three sides are boarded with extra strong stock-boards. All the posts that enter the ground are of white oak, and the wire of the corral is of the galvanized and woven extra heavy "Haish" pattern. The work was done by students of the agricultural course.

Assistant R. W. Clothier, M.S., of the Chemical Department, has been elected to the chair of chemistry and agriculture in the State Normal School at Cape Girardeau, Mo. He has accepted the position and began his work on September 1. The salary in his new position will be considerably larger than the Agricultural College could afford to pay him and the opportunities for growth are very good, especially with reference to teaching agriculture in the public schools, as very little has been done along this line. Professor Clothier in a graduate and postgraduate of the Agricultural College, a hard-working student and an energetic teacher. He and his estimable wife have left many friends at the College and in the State.

During the vacation the Chemical Department has received rather more than its usual number of substances for analysis. While the performance of this outside work is not a part of the duty of the department, it has always been its policy to accommodate the public as much as possible, and in this way many little services have been rendered gratis. In the cases where quantitative analysis is necessary, a charge is made sufficient to cover the actual cost to the College, unless some public purpose will also be served by the analysis, when no charge is made. The demand for analysis of various kinds is becoming so great that it seems likely that in the near future the appointment of a State chemist would be amply warranted if not required. Chemical control of the fertilizer and concentrated feed trade of the State is almost imperative.

Among the many improvements made at the College during the summer should be mentioned a tunnel about twenty feet under the surface, for the purpose of connecting the new physical building, the agricultural building and the horticultural buildings, the last two of which have had separate heating plants, with the central heating station. The main tunnel is three hundred seventy-four feet long and is nearly completed. The greater part of it is cut through hard and very tough clay and will probably not require arching. About seventy feet were driven through sandy soil which required the construction of brick lining. The work was done under the direction of Professor Walters. It required two gangs of men, one working in day time and the other at night, and was done chiefly by students Butterfield and Minis, though many others have assisted for a few days at a time. So far the tunnel has cost about \$300.

ALUMNI AND FORMER STUDENTS.

H. N. Whitford ['90] has been appointed collaborator in the bureau of forestry, United States department of agriculture.—*Science*.

Jane C. Tunnell, '89, has taken the position of instructor in pedagogy in the Joliet, Ill., high school. She will also have some of the work in English.

Geo. E. Hopper, '85, came up to start his daughter in College last week. Mr. Hopper is doing a prosperous business in the erection of government buildings.

Ivy F. Harner, '93, professor of domestic science, Louisiana Industrial Institute, spent six weeks of the summer vacation in the chemical laboratory in quantitative analysis of foods.

L. B. Jolley, '01, and Miss Bertha Evans were married at the residence of the bride's parents in Manhattan, September 11, 1901. After a short visit with relatives, Mr. Jolley will take up the study of medicine.

Rev. Victor Calvin [second year 1883], pastor of the M. E. churches at Olsburg and Garrison, died Monday and was buried at Riley, Tuesday. Rev. Calvin was a brother-in-law of Mrs. Calvin ['86], librarian at the College here.—*Nationalist*.

C. F. Doane, '96, dairyman of Maryland Agricultural College, visited the College last week. With Margaret Carleton Doane, '96, he has been visiting the home people. Mr. Doane is doing good work in the chemistry and bacteriology of dairying.

J. M. Westgate, '97, has resigned as assistant botanist here in order to take advanced study elsewhere in his chosen field. Mr. Westgate's energy and ability will undoubtedly bring him success in the future, and his place in the Experiment Station will not be easy to fill.

Miss Julia R. Pearce ['90], librarian of the College here for several years, has been appointed an analyst of soil in the department of agriculture, Washington. She is well known by Manhattan people as a close student and hard-working young woman.—*Nationalist*.

W. E. Mathewson, '01, has been elected assistant in chemistry here and entered upon his duties September 1. Mr. Mathewson gave a large amount of his time to additional study and work in chemistry during his course, and will doubtless succeed in his new position.

Miss Ora Yenawine ['95] is home from Randall's Island, New York, for a visit with her parents and friends. Miss Yenawine has been instructor in sewing in the New York House of Refuge, and she will return in a short time to again take up her duties there.—*Mercury*.

Edgar A. Allen ['87], superintendent of Quapaw Indian School at \$1500, has been transferred to the Carlisle Indian School as assistant superintendent, at a salary of \$1700.—*Nationalist*.

W. E. Whaley, '86, registrar and instructor in history, South Side Academy, Chicago, Ill., is now acting dean of that institution, the dean being in Europe on leave of absence. This is one of the institutions in affiliation with the University of Chicago.

Capt. Jim Harbord has recently been promoted, having been assigned assistant in the division of insular affairs in the war department. Captain Harbord graduated from the Agricultural College in '86, and enlisted at Fort Leavenworth as a private nine years ago.—*Mercury*.

Mary J. Pincomb, '96, has been elected director of domestic science and art in the Normal School of the University of Utah. She completed the graduate course in the Teachers' College, Columbia University, last year, and is well equipped to win success in her new field.

A. T. Kinsley, '99, and Anna L. Smith, '01, were married at the home of the bride in Ottumwa, Kan. Mr. Kinsley is assistant in the Veterinary Department, and the College people will be glad that he has brought Miss Smith back here so soon. They will reside at 406 Moro street.

Ex Surveyor O. E. Noble [97], formerly of Riley county, is reported to have been appointed surveyor of Kiowa county, Oklahoma. Mr. Noble has been in the new country for several weeks making himself familiar with it, and with his characteristic energy is sure to succeed.—*Nationalist*.

Sam Kimble, '73, has been appointed judge of the twenty-first district court, to fill the vacancy occasioned by the new election law. This appointment was made upon the petition of a large number of the citizens of the district, and is a recognition of his integrity, fairness and independence of mind, and legal acquirements.

Charles L. Marlatt, '84, assistant entomologist of the United States Department of Agriculture, whose home is in Manhattan, is spending the season upon his line of work in Japan. Later he will visit the Philippines to continue entomological work, and will probably return to the United States in October. Mr. Marlatt's work in entomology occupies a high position in this country.—*Mercury*.

J. W. Berry, '83, has obtained the sub-contract for the stone work on the new chemistry-physics building. Mr. Berry is one of the heavy business men of the alumni. In addition to doing a large building business, he owns three lumber yards and an extensive system of long-distance telephones. It is a satisfaction to the College, and especially to his classmate, the editor, to have him in charge of so important a part of the new building.

Kate Zimmerman, '00, goes to Concord, N. C., this fall as superintendent of domestic art in the Laura Sunderland Memorial School. This institution is located in the mountain regions of North Carolina and is founded especially for the people of that section. Miss Zimmerman will doubtless find it a pleasant place to work, and all will wish her success.

Alice Melton, '98, after an absence of three and one-half months spent at the Kansas Wesleyan Business College, Salina, has resumed her duties as clerk in the office of the Director of the Experiment Station. During her absence Florence Vail, '01, filled her place very efficiently, and has now gone to Burlington, Vt., on an extended visit with her sister, Alice Vail-Waugh, '92.

The latest year-book of the United States Department of Agriculture contains the following articles by graduates of this institution who are now employed in the Department: Forest Extension in the Middle West, by W. L. Hall, '98; The Scale Insect and Mite Enemies of Citrus Trees, by C. L. Marlatt, '84; The Date Palm and its Culture, by W. T. Swingle, '90, and Successful Wheat Growing in Semiarid Districts, by M. A. Carleton, '87.

Cards are out announcing the marriage of Henry W. Rogler, of Matfield Green, Kan., to Miss Maude Sauble, of Florence, at the home of the bride last Sunday, July 21. Mr. Rogler graduated at the College here in 1898 and is an energetic farmer of Matfield Green. Miss Sauble graduated last June. Both young people are possessed of excellent character and have a large number of friends who wish them well in their new relation.—*Nationalist*.

A happy wedding occurred at the pleasant home of Captain and Mrs. Painter, Tuesday morning, September 3, at 8:30, at which time their daughter Carrie was united in marriage to E. D. Des Marias by Rev. Mr. Scott, pastor M. E. church, Englewood, Kansas. Mr. and Mrs. Des Marias are both well known in this county. The bride is a daughter of Captain and Mrs. Painter. She is a graduate ['99] of the State Agricultural College at Manhattan, and a most excellent woman, loved and esteemed by everybody who knows her. The groom is the junior member of the Des Marais Bros., and is one of the wealthiest and best cattlemen in Meade county, with a host of friends.—*Meade Globe*.

The sad news comes to the friends of Miss Florence Martin of her death at Morgan Hill, Cal., July 12. She was buried at Three Mile cemetery north of Junction City last Friday, July 19. Miss Florence was born June 12, 1874, being twenty-seven years and one month old at the day of her death. She left her home near Junction City last April and went to California hoping thereby to ward off the dreaded disease, tuberculosis, with which she was threatened, but the hope was not realized. Miss Martin was a niece of Doctor Patee of this city and graduated from the College here in 1898. She has many warm friends here who will mourn her untimely death.—*Nationalist*.

J. B. S. Norton has been elected to the chair of botany in the Maryland State Agricultural College at a salary of \$1600. Chas. F. Doane is to be his assistant. Both men graduated here in the class of '96. Mr. Norton has been in the Missouri Botanical Gardens at St. Louis since his graduation and is well fitted for the place. Mr. Doane has also had a large experience in his line of work. The college is only eight miles from the city of Washington, D. C.—*Nationalist*.

Mr. and Mrs. C. C. Jackson [C. C. Jackson, '99, and Emma O'Daniel Jackson, special student 1899] came in from Doylestown, Penn., last Saturday. After a short visit with Mrs. Jackson's parents, Mr. and Mrs. J. F. O'Daniel, they left for Westmoreland to visit relatives. Mr. Jackson has been teaching in the National Farm School at Doylestown for several years, but gave up his position there and came to Kansas to engage in the stock business. They will locate near Westmoreland.—*Mercury*.

Invitations are out for the wedding of Miss Minnie McCleary [special student 1900], of Beloit, and O. R. Smith ['98], of Manhattan, which is to take place at the home of Miss McCleary, near Beloit, at 9 P. M. August 28. They will be at home after September 15, at Socorro, New Mexico, where Mr. Smith will be instructor in the school of mines. Miss McCleary has held a position as stenographer at the College for several years, and later was bookkeeper at C. P. Dewey's office and at Zeigler & Doran's.—*Mercury*.

Hon. J. L. Bristow should be congratulated no less than W. R. Spilman [third year 1890] because of the selection of the latter as his private secretary. Mr. Spilman came to Washington from Manhattan in 1898 and began work in the navy department under Vice-President Roosevelt, then assistant secretary of the navy department, and gave such satisfaction that Colonel Roosevelt complimented him personally in a high manner. He was afterwards detailed for a time at the White House, and then was transferred to the post-office department, where General Bristow has learned to depend upon him most implicitly.—*Topeka Herald*.

The eastern papers have given some good notices to the National Angora Goat and Cattle Company, which was recently organized by Geo. F. Thompson [third year 1881, Supt. of Printing 1881-'87]. This company, capitalized at \$100,000, now owns five thousand Angora goats and some cattle. Some of these are upon a leased farm at Wellsboro, Pa., and about three thousand will be placed upon a tract of one thousand six hundred acres which has been purchased in southeastern Maryland, near Washington. Mr. Thompson was formerly editor of the Manhattan *Nationalist* and is now editor of the Bureau of Animal Industry.—*Mercury*.

A beautiful home wedding took place at the residence of Mr. Wm. Deibler when his daughter Bertha and Mr. E. L. Smith ['98] were united in marriage by Rev. J. K. Miller. The ceremony

BOARD OF INSTRUCTION.

| | |
|---|------------------------------------|
| ERNEST R. NICHOLS, A. M. (University of Iowa), President..... | 101 S. Juliette avenue |
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| MISS JOSEPHINE C. HARPER..... | Corner Sixth and Pierre streets |
| MISS ALICE RUPP, (Indiana State Normal)..... | 620 Houston street |
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| John O. Hamilton, B. S. (Chicago), Assistant in Physics..... | |
| Hetty G. Evans, Assistant in Drawing..... | |
| V. M. Shoemith, B. S. (Mich. Agr. Coll.), Assistant in Agriculture..... | |
| Eleanor Harris, Assistant in Music..... | |
| F. C. Weber, B. S. (Ohio State University), Assistant in Chemistry..... | |
| W. E. Mathewson, B. S. (K. S. A. C.), Assistant in Chemistry..... | |
| Helena M. Pincomb, B. S. (K. S. A. C.), Assistant in Sewing..... | |
| Jacob Lund, M. S. (K. S. A. C.), Supt. Heat and Power Department..... | Cor. Tenth and Kearney |
| C. Jeanette Perry, B. S. (K. S. A. C.), Executive Clerk..... | 722 Humboldt street |
| Matilda Doll, Stenographer..... | |
| Alice M. Melton, B. S. (K. S. A. C.), Clerk in Director's Office..... | |
| Charles Hughes, Secretary to the President..... | |
| W. R. Lewis, Janitor..... | N. E. corner Main College Building |

* Absent on leave 1901-02.

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No. 2

SOME LESSONS FROM THE DROUGHT.

IT HAS been the practice of the boomer, and even of the over-enthusiastic, though well-intentioned, sincere lover of our State, to glibly assert, and at times to plausibly maintain, that the climate of the State is being radically transformed. It has been argued that the rainfall is increasing from year to year, and that drought is becoming less known and less severe when it occurs. Observations at Manhattan extending over more than forty years give no support to the idea that important changes in the average annual rainfall are taking place. Climatic phenomena are the result of the operation of such stupendous forces that real changes of climate must be slow, and the result of correspondingly wide-spread and deeply seated changes in physical conditions. It has been maintained by some that the planting of trees, the construction of numerous small reservoirs for the impounding of water, and simply the cultivation of the soil are agencies that are increasing, or may increase, the annual rainfall. This contention probably has some basis of truth, though in the opinion of the writer the total effect can be but slight.

The prairie soil, with its tough, close-knit growth of sod, is not fitted to absorb and hold the quick showers that often furnish a large part of the summer's rainfall. This is especially true in the western part of the State, where, on account of the scanty rainfall, the soil is dry and hard. Under such conditions much of the water runs off and serves no useful purpose. Bringing such soil under cultivation enables it to hold the rain. By subsequent evaporation this renders the air more humid, thus increasing the possibility of rain. Land planted to trees acts in a similar manner, and probably in no other, to increase the rainfall. Ponds of water would have the same effect, but their area must necessarily be so small that they would possess no practical significance in this way. We may concede, then, that the overturning of the sod should have a slight increasing effect on the

rainfall, but contend that the cosmic and terrestrial agencies that determine rainfall are so tremendous that we may safely assume that on the average this will not be seriously altered within any period of time which is of practical interest to us. If the late drought, scarcely less severe than that of 1860, the standard of aridity, serves to bring this truth home to us it will have taught a valuable lesson to some.

I cannot forbear at this point to congratulate the people of the State upon having learned one lesson in the past, namely, that "rain-making" is not a legitimate or successful business at present. When we recall the ease with which hundreds of dollars were extracted from many towns a few years since, for the exercise of certain puny efforts of "rain-makers" which, compared with Nature's forces, could have had no more effect than those of a gnat spinning around on the fly-wheel of an engine could have on its horse-power, we may well congratulate ourselves upon having made a distinct advance in civilization, since we have passed through the worst drought of this generation with no such manifestation of credulity.

The writer, a native of the State and a constant resident thereof, cannot recall a year in which a deficiency in rainfall has not occurred at some time during the growing season in the region coming under his observation, about one hundred miles west of Kansas City. Whether such deficiency proved very injurious or not depended on the relation of its time of occurrence to the development of the several crops. The simple truth is, that by far the greater part of our State is subject to deficiency of rainfall, and the farmer who learns the lesson and adapts his agriculture to conditions as they are will be pinched the least. The drought of the past summer has merely accentuated this by the special untimeliness of its occurrence.

Recognizing, then, the constancy of this danger, what must we do to minimize its damage? Since we cannot control rainfall, we must make the most of what we get. The conservation of soil moisture has been treated for many years by a number of western writers, and by the agricultural papers and experiment station bulletins. This continued reiteration of the simple principles of moisture conservation has not been without its effect. More people know what is meant by a dust mulch, and appreciate its efficacy, than ever before. Yet there are thousands who are still in-

different, to its beneficent possibilities. Some may be deterred from attempting to utilize this principle by the idea that special and expensive implements are necessary. This is not the case. The ordinary plow, harrow, disk-harrow or cultivator, each in its own place, applied at the proper time, is all that is needed. If soil cannot be plowed at the proper time, other tools may be required to close large openings in the soil and to further pulverize the entire mass. If plowed at the right time, other additional treatment with a view to moisture conservation is unnecessary until the porous state of the soil is impaired by rain. When this occurs it is of the utmost importance to restore the lightness of the surface at once by harrowing or shallow cultivation, and to repeat this as often as showers occur that are heavy enough to form a crust. When such showers do not occur, repetition of the treatment is unnecessary. Few, even of those who appreciate the value of the dust mulch, realize how great the loss of water is the first few days after a rain and the necessity of producing the dust mulch as soon as the soil will permit working. Space will not permit the quotation of figures, but all of the statements made here are based upon experiments with soil moisture carried out at the Experiment Station. The lesson in this connection is, that inasmuch as we know not the day nor hour when the drought beginneth, we must till our soil constantly as if it were at hand. The plow, the cultivator or the harrow must follow the rain as closely as proper tillage will permit.

The latter part of July a considerable number of fields and plantations at and near the College were sampled to the depth of fifteen inches and determinations of moisture made. Careful notes were taken also of the condition of the growing crops. It was found that with most cultivated field crops the moisture was reduced to from eight to eleven per cent. In the case of grass land it was reduced to about six per cent. As these samples extended to a depth of fifteen inches, it is obvious that the upper one-half must have been much drier still. The College orchard, which had been kept free of weeds and thoroughly cultivated throughout the season, showed over sixteen per cent of moisture at the close of this period of nearly eight weeks with less than an inch of rain.

This drought, like its predecessors, has emphasized once more the advantage which lies in diversification of the time of planting.

If the dry period that is almost sure to come to much of our State each year finds our corn just in tassel, and blows its fiery breath over it for a few days, it means ruin. An adjacent field planted two or three weeks later may make a good crop. Another year the conditions will be reversed and the late corn be the sufferer. It seems clear that the chances of an even supply of this cereal are greater when we make two or three plantings of our corn. To a certain though probably less degree similar considerations apply to the planting of other crops.

With all our talk in favor of specialization, the fact remains that permanent, successful agriculture must be diversified agriculture. The husbanding of the fertility of the soil, the advantageous employment of the equipment of the farm, both in labor and machinery, and the greatest safety in crop and animal production, demand general farming rather than special. This does not of course preclude the pursuit of some specialty to an extent that does not impair the general plan. This year we see the financial soundness of the State as a whole assured by the magnificent wheat crop. While this is well, it does not help the farmer very much who has no wheat. Even the straw stacks are too far away to be of the most use. Thousands of acres that might have been planted in wheat were planted to corn. Will it not be best for our farmers to lay hold of the advantages of crop diversity and give some special attention to means of combating the insect pests that caused the abandonment of wheat production to so great an extent in the eastern part of the State? While this furnishes the most striking example, other crops are available, one to one farmer, another to another, by which diversity can be secured and financial solvency retained.

Greater attention must be given to plants that are in a measure drought-resistant. The advantages of Kafir corn in this respect are forcing themselves upon the attention of the farmers of the eastern part of the State, and the utilization of this plant to a much greater extent than heretofore may be heartily advised and confidently predicted. Kafir corn which rolled up its leaves and stood still during the July drought took advantage of the rains and will make an excellent crop of fodder and much grain, notwithstanding the August and September drought.

The preëminent value of alfalfa was brought out in strong relief by the drought. The water in the soil was sufficient to

produce an excellent first cutting, and in many cases a good second cutting, and even a small third cutting was obtained. While the yield is much reduced from that of a good year, the farmer with even a part of a crop of alfalfa is far better off than those who have none. Its high nutritive value will enable its possessors to use it instead of grain. The object lesson afforded by the alfalfa stacks of our progressive farmers will not be lost on their neighbors who have good sense, if less foresight.

The drought-resisting power of cow peas was shown in our observation in respect to soil moisture near the end of July, mentioned above. It was found that this crop remained green, thrifty and growing when the water in the soil to a depth of fifteen inches amounted to only eight per cent. This can be said of no other plant observed. Soy beans, like corn and Kafir-corn, died or were materially injured wherever the soil moisture fell below ten per cent. While cow peas must be regarded as an experimental crop in this State to a certain extent, their drought-resisting power is an endowment that places them in the front rank of candidates for rural esteem, considering at the same time their well-known high feeding value.

J. T. WILLARD.

THE NEW PROFESSORS.

MISS MARY E. BERRY, who will occupy the chair of English during the absence of Professor Lockwood, is a graduate of the Kansas State Normal and has done considerable special work in English. She was special teacher of English in the Ottawa High School at the time of her election here.

MR. LEON W. HARTMAN, who will be professor of physics and electrical engineering for the present College year, during the absence of Professor Eyer, has taken his bachelor's and master's degrees from Cornell University, and for a year and a half before coming here was instructor in physics at his alma mater.

MR. WILFORD O. CLURE, professor of oratory, is a graduate of Drake (Iowa) School of Oratory (B.O.) and Iowa College of Laws (LL. B.), and took one year of postgraduate work in the Boston School of Expression. He taught for two years in Central University, Iowa.

MR. EDMUND B. McCORMICK, recently elected professor of mechanical engineering, is a graduate of the Massachusetts Institute of Technology, and has had charge of similar work at Bozeman, Mont., for the last three years.

MISS EDITH A. MCINTYRE, recently elected professor of domestic science, graduated from Teachers' College, N. Y., in 1892, and took special work at Chautauqua and Cornell University. She taught for three years in the North Carolina Normal and Industrial College, and for three years was assistant at Teachers' College. Last year she taught domestic science at Ishpeming, Mich.

DR. NELSON S. MAYO, who again becomes professor of veterinary science at K. S. A. C., is a graduate of the Michigan Agricultural College and the Chicago Veterinary College. For the past four years he has been at the Connecticut Agricultural College, at Storrs.

BOARD OF REGENTS PROCEEDINGS.

The Farm and Dairy Departments were authorized to provide and arrange for five special meetings and programs on poultry, beef cattle, dairy cattle, swine, and horses, within the weeks of the judging school.

Each student taking dairy practice will be required to deposit five dollars with the Secretary of the College, at the time he secures his assignment, to pay for any glassware he may lose or break, and the Department of Dairy Husbandry will be instructed to keep an accurate account of such losses. The difference between the amount of the deposit and the losses by breakage shall be returned to the student at the end of the term. If any student breaks over five dollars worth of glassware before the close of the term it shall be the duty of the Department of Dairy Husbandry to report such students to the Secretary of the College, who shall require that he make an additional deposit.

The Dairy and Farm Departments were authorized to allow the services of the bulls owned by the College to outsiders at a fee not exceeding \$10, the fee to be determined by the heads of these departments, as they find to be for the best interests of the College, and to be collected at the time of the service.

An appropriation of \$2500 additional was made to the Farm and Dairy Departments.

Regents Stewart and Satterthwaite were appointed a committee to purchase a span of mares at a cost not exceeding \$800.

The following changes were adopted in history and economics: General history, third year, and political economy, first term fourth year.

The Agricultural building is to be heated from the general heating plant.

The sum of \$125, or as much as may be necessary, was appropriated to provide binders for the magazines.

The Entomological and Zoological Department was allowed \$265 for the purchase of microscopes and supplies.

The following students are to be assigned to stock judging: First-year students in agriculture, second-year students in dairying, third-year students in stock feeding, fourth-year students as an extra, and visitors may be allowed to be present to ask questions and be furnished blanks for practice work in judging.

WHEREAS, Certain newspapers have asserted that there are at present two factions in the Board of Regents of the Kansas State Agricultural College, one of which stands for a purely literary training and is opposed to the short courses in dairy, agriculture, and domestic science, the other standing for a purely agricultural college and opposed to the present order of things; and

WHEREAS, It has been stated by anonymous correspondents that a crisis in the affairs of the Agricultural College is pending: therefore be it

Resolved, That we regard the above statements as wholly unwarranted and calculated to work injury to the College. We desire to assure these papers, and through them the many friends of the institution, that there is not, nor has there been at any time, a desire to restrict the agricultural work done at this College. On the contrary, we are anxious that everything possible be done to enlarge and render more efficient the experimental work.

Two years ago the Board adopted unanimously the following resolution:

Resolved, That the present Board of Regents are distinctly in favor of doing all in its power to encourage investigations and study in the direction of seed-breeding and soil physics, and that as fast as possible the above and kindred topics shall be emphasized.

That the charge that this Board, or any part thereof, is opposed to the short courses or the dairy department is entirely

without foundation; on the contrary, it is this board that adopted and has since maintained the present short courses.

That how or why the fear has arisen that an attempt is being made to relegate agriculture to a minor position, or that this institution is in any sense a rival of the State University, we can only surmise. Certain it is that no true friend of the College can find data for such a conclusion. No expansion of the purely literary side of the College work has been attempted or even advocated.

That we believe that every member of the Board or Regents has only the good of the Agricultural College at heart, and that such differences of opinions as arise are wholly honest; and that since we are as one in recognizing the great importance of the economic questions that should be solved in this institution, we feel safe in the assertion that there is no crisis such as has been intimated.

That the above is offered, not as a defense of those whose motives and desires have, as we believe, been misrepresented and misjudged, but to rectify errors that may in any manner injure the power for good of the Agricultural College.

THE ATTENDANCE.

The following list of undergraduate students were enrolled in the different courses by Tuesday evening, September 24:

| | 1900. | 1901. |
|---|-------|-------|
| Fourth years | 60 | 52 |
| Third years | 76 | 90 |
| Second years | 144 | 200 |
| First years | 311 | 312 |
| Preparatory | 146 | 126 |
| Apprentices | 24 | 26 |
| Specials | 3 | 5 |
| D. S. short course, first term | 31 | 31 |
| D. S. short course, second term | 15 | 9 |
| Totals | 810 | 851 |

The attendance of this year is contrasted here with that of the first Tuesday of last fall term to show that the fears of a decreased attendance on account of the poor corn crop were not realized. The probabilities are that the attendance for the present collegiate year will again show a considerable increase and cross the 1400 or 1500 mark. The postgraduates who usually enroll a week or two late are not enumerated in the above table.

THE INDUSTRIALIST.

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

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LOCAL NOTES.

Miss Howell will make her home at Park Place this year.

The carpenter shop is building some very handsome card cases for the library.

Professor Walters will lecture before the Brown county teachers' institute next Saturday.

President Nichols left for Chicago Sunday, on College business. He intends to return Tuesday.

Mrs. E. R. Nichols returned home September 20 from Colorado, where she had been for her health.

Professor Otis will give an address before the Missouri State Dairymen's Association next November.

The K. S. A. C. baseball nine measured themselves with the Manhattan Reds yesterday, at Athletic Park.

The twentieth annual convention of the Y. M. C. A. of Kansas will be held at Fort Scott, October 24 to 27, 1901.

Professor Lindquist, formerly assistant in physics at this College, is teaching in a high school at Kankakee, Ill.

Architect Haskell, of Lawrence, was here last Thursday to confer with the Board of Regents about the new Physical Science Hall

The Horticultural Department took several prizes at the Pan-American Exposition, at Buffalo, for excellent exhibits in fruits and grapes.

Mr. A. Huycke, for the past two years private secretary to President Nichols, has resigned to take a course at Northwestern University.

The new Gymnasium is nearly completed and is receiving its heating apparatus. The pipe-fitting is being done by Engineer Jacob Lund.

The Experiment Station has just completed the mailing of an interesting bulletin, No. 102, on maintenance ration of cattle, by Professor Otis.

Prof. A. B. Brown and Assistant R. H. Brown, of the Music Department, were in Topeka one day last week to hear the Banda Rossa concerts.

Assistant Dickens has returned from the Pan-American Exposition at Buffalo, where he had gone to study horticultural problems and landscape art.

Contractor Berry, of the new Physical-Science building, has thus far received one hundred twenty-five tons of cement, and more is on the road and coming.

We are glad to report to the many friends and pupils of Assistant Professor Josephine Harper, of the Mathematical Department, that she is improving rapidly.

A biological club is being organized to whose membership all students and Faculty members interested in either the botanical or zoölogical sides of biology are welcome.

Professor Cowgill, editor of the *Kansas Farmer*, and Colonel Dudley, of Topeka, were at the College last Wednesday and Thursday, conferring with the Board of Regents.

The pearl millet, or *Penis cillaria*, grown by the Botanical Department this season ranks along with the cow pea as a drought-resister. The next thing is to determine its forage value.

The Board of Regents at their session last week appointed a committee to arrange for running the creamery work during the entire year. Details of the program will be published next week.

Prof. D. E. Lantz, who has been engaged by the College to conduct a line of experiments concerning the extermination in western Kansas of the prairie-dog and the pocket gopher, has been carrying on investigations and experiments for some time at the old Fort Hays reservation.

The campus is much cut up in many places about the building site of the new Physical-Science building, but a renewed effort next spring, together with the wet year promised by the weather prophets, will restore its smooth lawns and sylvan adornments by Commencement or July 4. Progress always involves interference with the old.

Dr. W. M. Beardshear, president of the Iowa Agricultural College, and also president of the National Teachers' Association, has been secured to deliver the Commencement address here next June. Doctor Beardshear is a powerful man, a finished orator and a strong man of brains and culture. The College has been fortunate in its choice.

The separate Department of Dairy Husbandry, under Professor Otis, was organized on July 12. The department has since published two press bulletins which have been sent to the agricultural press and will be sent to any one who makes special application for them. Bulletin No. 100 treats of "Sorghum Pasture for Dairy Cows," and bulletin No. 102, of "Maintenance Ration for Cattle."

The Farm Department is having a galvanized watering tank placed in the division fence of the new bull lot. It will be connected with the water mains and provided with a floating self-regulator.

The INDUSTRIALIST but echoes the press of all Kansas in saying: Should Secretary Wilson, of President Roosevelt's cabinet, retire, the office cannot be placed in more worthy hands than those of Hon. F. D. Coburn, of Kansas.

The farmers' institute work is going on at the good rate of three or four a week. There were held during July, August and September forty one institutes, and definite arrangements have been made for fifteen more. Requests for institutes are coming in every day.

The following expert judges have kindly donated their services as instructors in the work of stock judging for the short course in agriculture next winter: Poultry, February 17 to 22—C. H. Rhodes, Topeka; Beef Cattle, February 24 to March 1—John Gosling, Kansas City; Dairy Cattle, March 3 to 8—T. A. Borman, Topeka; Swine, March 10 to 15—Geo. W. Berry, Berryton; Horses, March 17 to 22—J. W. Robinson, El Dorado.

Mr. Adjemian, an Armenian student in advanced chemistry in 1900, has been heard from. Being now an American citizen, the price upon his head has been removed and he travels with safety through his native country. He is introducing American machinery and the American systems of agriculture. His father died in Armenia recently. Gregory and Torrosian, also Armenians, seem to have dropped out of existence.—*Students' Herald*.

The Botanical Department has fifteen acres planted in cereals for selection and cross-breeding. Five acres are planted to about twenty varieties of selected pure-bred wheats in one-tenth acre plots. Ten acres are devoted to four hundred thirteen numbered varieties of wheat, of which one hundred sixty-six are cross-bred and the remainder pure-bred. A large number of the latter are importations of this year from Russia, Siberia, Roumania, Bosnia, Servia and Algeria, which were furnished by Mr. M. A. Carleton, cerealist of the U. S. department of agriculture. In addition to the wheats, one hundred nineteen varieties of barleys from the same source and numerous ryes and spelts are being planted. In the spring, macaroni wheats and numerous varieties of oats for crossing and selection will be added.

Among the many new students to attend College this year from a distance, perhaps none come farther than Mr. E. B. Todd, who hails from El Cristo, Cuba. He is a native American, but his father, like General Funston, while Uncle Sam yet waited to be spurred, took up the cause of *Cuba Libre* and enlisted in her army, securing the rank of captain. After hard service which led to the happy termination, he sent for his family to make their home in the new land, and in two years' residence there young Todd has

mixed with the natives, learning much of their lingo and customs. He has with him the favorite weapon, the machete, which his father carried in the service, and many other interesting relics; also some large photographs taken by Spaniards at their occupation of the defenses at Santiago at a time when it would have been unhealthy for an American to be present. Mr. Todd is a relative of the May family and rooms with them, west of the athletic park.—*Nationalist*.

The new Physical Science Hall is gradually assuming shape so far as the basement floor is concerned. A large force of masons, stone cutters and carpenters are at work upon it every day and it is expected to finish the walls by January 1. The contract for the erection of the building was let at the June meeting of the Board of Regents to Contractor C. A. Fellows, of Topeka, for the sum of \$55,434, and the contract for the heating system to Gaerber Bros., of Lawrence, for \$5676. The building without its expensive equipment will cost, when completed, \$70,000. It is intended to finish it before July 1, 1902. The structure will be three stories high and measure about one hundred by one hundred seventy-five feet. The architectural treatment of its exterior harmonizes with that of the other buildings. It is located about midway between the Main College building and the new Agricultural Hall so as to form, with these and the new Library building, a grand court of four stately structures situated in a large semicircle. Its main entrance will face south and be directly opposite the main entrance of the Library Hall, so that students passing between these two buildings will not be required to walk through the crowded corridors of the Main building. The new building will be equally divided between the Departments of Physics and Chemistry. The former will occupy the west wing and the latter the east wing. The main part of the floor space will be devoted to laboratory work. Each half will contain several large and well lighted class rooms and offices, and the extensive laboratories for both departments will be fitted up with all the modern equipment that can be procured with the appropriated amount. All will have extensive provisions for ventilation, water service, electric power and electric light. There will be an elevator for hoisting materials into the upper stories, dark rooms for photographic and photometric work, several lavatories, vaults, apparatus closets and storerooms. The basement floor of the east wing will be fitted up for the chemical work of the Experiment Station. The building will be heated by steam from the College power-house, brought from the boilers across the campus through a tunnel, which is nearly completed at this writing. Every room will have a combination of the direct and indirect radiation system, *i. e.*, it will have in addition to the usual radiators also a constant and easily regulated supply of fresh air heated by a pipe system in the basement and driven by an electric fan through spacious flues into the different parts of the building. The Physical Science Hall will be a model of its kind and large enough to serve its purpose for half a century to come.

MAINTENANCE RATION FOR CATTLE.

(Press Bulletin No. 102, issued by Department of Dairy Husbandry.)

On account of the probable scarcity of feed during the fall and winter of 1901-02, the Kansas Experiment Station undertook an experiment in feeding wheat straw and adding enough ground wheat to secure a maintenance ration. Three dry cows averaging 1226 pounds live weight, two two-year-old heifers averaging 1059 pounds, and three calves averaging 510 pounds, were selected for this test. The experiment began August 1, when the aggregate weight of the eight head amounted to 7327 pounds. As the cows came from good sorghum pasture and the heifers and calves from good prairie pasture they did not relish the wheat straw for the first few days and only consumed about ten pounds daily per head. The cattle were fed four pounds of ground wheat daily per head throughout the experiment. By dampening the straw and sprinkling the grain on and through it, considerably more straw was consumed, the average for 31 days being $16\frac{1}{2}$ pounds daily per head.

At the close of the first week every animal in the experiment lost in weight, the average being 62 pounds per head. During the second week they regained a considerable portion of this loss. At the close of the experiment, September 1, the three cows weighed an average of 1172 pounds, a loss of 54 pounds per head for the 31 days under experiment, the heifers averaged 1067 pounds, a gain of 8 pounds per head, and the calves averaged 523 pounds, a gain of 13 pounds per head. The total weight of the lot at the close of the experiment was 7217 pounds, a loss of 110 pounds for the lot, or 13 pounds per head, a small item when one considers that it all came in the first week of the experiment. The total feed consumed by the lot was 4232 pounds of wheat straw and 992 pounds of ground wheat. The straw was hauled about eight miles and did not contain any chaff or refuse wheat. When the cattle have access to a straw stack they get considerable chaff and more or less shriveled or waste wheat blown over with the chaff. Under these conditions cattle would not need as much wheat as given above.

This experiment indicates the possibilities in wintering cattle. When wheat straw, doubtless the poorest roughage on the farm, can maintain an animal with a small outlay for ground wheat, it ought to encourage a farmer to hold his cattle. Straw is abundant, especially in the western part of the State. In many places it is being burned in order to get rid of it. Where straw can be had for the hauling and wheat at 60 cents per bushel the feed cost of keeping a 1000 pound cow on a maintenance ration need not exceed \$1.25 per month. Suppose the straw costs \$5 per ton, the feed cost would be only \$2.50 per head per month, or \$1.50 more than it usually costs in years when feed is plentiful. Most every farm produces rough feed considerably better than wheat straw. Prairie hay, corn fodder, Kafir-corn fodder, sorghum fodder or hay can be fed either alone or in combination with each other and the amount of grain required for maintenance reduced. Where red clover or alfalfa is available little or no grain need be fed.

The present low prices of stock cattle, with every prospect of high prices in the spring, and the cheapness with which the cattle can be wintered, as shown by the above experiment, should induce farmers to hold their cattle, even though they could be sold at fair prices.

D. H. OTIS.

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PHYSICAL SCIENCE IN THE AGRICULTURAL COLLEGE.

IN THE broad sense of the word the term *physics* may be defined as the science of matter and energy. It is therefore the name given to a group of sciences, in which are included all the sciences *not* metaphysical. Chemistry, for example, is the physics of the atom; geology, the physics of the earth's crust; astronomy, the physics of the universe; biology, the physics of living matter; and agriculture, the physics of the soil and the vegetable world. Natural philosophy, or *physics proper*, includes the study of the laws and properties of matter; the study of mechanics and heat, electricity and magnetism, light and sound. In this paper the word *physics* will be used in this latter and more restricted sense.

Using the word in this restricted sense, it may be well to note in the foundation and endowment of the institution the original intention toward this branch of science. In the original land-grant act, passed by congress and approved by President Lincoln, it was provided that there should be granted to the several states public lands, from the sale of which there should be established a perpetual fund "the interest of which shall be inviolably appropriated by each state . . . to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning *as are related to agriculture and the mechanic arts* . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Again, in the "Morrill Bill" it was provided that the annual appropriation was "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic sciences, with special reference to their applications in the industries of life and to the facilities for such instruction." After reading the language above

quoted there can be no question as to the original intention of the framers of the above acts.

Notwithstanding this, however, one may question the relative position that physics occupies in the curriculum of the Agricultural College. Because it is so self-evident that it has become axiomatic, it seems superfluous to say that for the electrical or mechanical engineer a thorough knowledge of physics is almost an absolute necessity. It suffices to say that the science of electrical engineering is based almost wholly on physics, and the successful mechanical engineer devoid of a knowledge of physics is an unknown quantity; he does not exist. Is it not evident, then, after reading the provisions in the endowment, that at least for these two classes of men, *training themselves in the mechanic arts*, physics deserves a recognized place in the curriculum of the Agricultural College?

That one should question the utility of a thorough knowledge of physics in the science of agriculture seems almost incredible; yet to show that a thorough general knowledge of physics is equally indispensable to the agricultural element of our people, it will be necessary to be more detailed and explicit. To the modern successful farmer the question of drainage or irrigation may be a serious problem; and none will deny that in this a knowledge of practical physics is important. A given drainage system may mean good health or ill health to both man and beast; proper sanitation may mean life and health; improper sanitation may mean sickness and death. And in sanitation a knowledge of the physics of the soil is essential. The slopes must be studied; the absorbing properties must be determined; the porosity or imperviousness must be known, which is equivalent to saying that one must have a knowledge of that branch of physics known as capillarity and osmose.

From an economic standpoint as well, physics is of value to the farmer. For example, does it not offer in part or *in toto* an answer to such practical questions as the following? What general principles are to be observed in order to secure economic irrigation? What are the movements of the soil moisture in a given locality? How can one best conserve the soil moisture? When is the proper time to cultivate, and to what depth should one cultivate the soil in order to best conserve the soil moisture? What are the best methods of soil ventilation? A slight knowledge of

latent heats, for example the heat of fusion of ice, might lead to a more economic use of ice, or to a more intelligent care of cattle to protect them from severe weather and the cold rain and snow-storms of winter; for in a large herd of cattle exposed to a snow-storm, the loss in beef fat or butter fat, used in furnishing the extra amount of heat required, may be an important factor. The interception of a given drainage system, the strength of building materials, the control of temperature in farm buildings, the ventilation of farm buildings, the best material to be used under given local conditions in farm buildings, the construction of silos, road-bed construction, are topics of concern to our agricultural classes; and these are questions of physics. Diversified though this list is, it might be extended indefinitely. The principle of the pump is of common interest to the farmer and to the physicist. Thermometry is likewise of importance to both. Incidentally, it may be of interest to note that if our knowledge of electrical phenomena had been more extensive the probability is that the American public would have wasted less money for lightning-rods as a protection from lightning than has been the case in the past.

In this rapidly advancing age, when the self-binder has replaced the cradle and the traction-engine and thresher have replaced the flail, is it too much to expect that gradually horse power and steam power will be replaced by electrical power? It was only a few years ago that relatively few bicycles were used in the agricultural regions, but to day their number is legion. So in the future, when the selling price will have been reduced so as to be within the means of the average individual, the bicycle will be replaced by the motor-cycle and the horse and carriage will be largely replaced by the automobile or horseless carriage. Even to-day the movement has begun! How long will it be before the modern farmer—the graduates of our agricultural colleges—will have to be trained in engineering and electrical science? If the signs of the times mean anything, the time is not far distant. As in the past the windmill and traction-engine have displaced the older and lesser sources of power, so in due time electricity will be a dominant power factor because of its cheapness, its durability, its lightness and its simplicity in transportation and storage.

“The cost of harvesting wheat on the Pacific coast has been so lessened, by the use of automobiles, that a greater amount of the grain can be produced at the same actual expense than in the Ar-

gentine Republic, where labor costs only a fraction of a dollar a day. The large automobile traction-engines now used in California are of fifty horse-power, and are provided with driving wheels sixty inches in diameter. They do the plowing, planting and harvesting, in their proper seasons. One traction-engine performs the triple work of plowing, harrowing and planting in one operation."—*Success*.

To come to more specific grounds, if it is true that the course in physics as given in our College can be criticised; if it is true that it is too theoretical; if it is true that it is not practical enough; if it is true that the laboratory side of the science, *i. e.* the practical side, has not been sufficiently developed; the reason for this deficiency is not hard to find. Primarily there are two difficulties, one the lack of suitable modern apparatus and the other the lack of room. The latter will be remedied when the new building is completed, and the former difficulty will be overcome when the new science building is thoroughly equipped with new apparatus, and an annual appropriation of sufficient magnitude is assured to procure each year a reasonable quantity of new and improved laboratory apparatus and miscellaneous but necessary laboratory supplies. The fact that the agriculture of to-day is at a more advanced stage than it was fifty or one hundred years ago cannot be denied. Likewise the physical science of the past century has made tremendous advances, and it has continually added to the comforts, material advances and privileges of the agricultural community. In fact, has not the development of agriculture and physical science hitherto gone hand in hand in their upward progress? At this stage, then, can our Agricultural College afford to neglect, as unimportant, the pursuit of knowledge in physical science? Shall we not recognize that here, as in life, that it is through the law of *interdependence*, not independence, that we grow in strength? In conclusion it may be well to observe that physical science contributes, as do the other sciences, to our general culture and liberal education, the ultimate aim of all which is the perfection of character and the elevation of the material and ethical condition of men. L. W. HARTMAN.

The walls of the new Physical-Science Hall are growing rapidly. The structure will soon loom up so as to be visible from the city.

SOME SUGGESTIONS ON STUDENT LIFE.

EVERYTHING that is worthy of human endeavor is capable of performance in a best way. We are wont to say, when an advanced state of development has been reached in any line of effort, that the problems in question have been reduced to a science. Now, it would be presumptuous to assert that all individuals should be poured into a common mould as far as their student acts are concerned. One is perhaps unwarranted in using such a phrase as "the science of studentship," yet it is clear that some students proceed upon some false lines during a college course and that therefore, for the normal case, certain general conclusions may be safely reached.

Whatever may be the view taken as to the special functions of any particular institution, it yet remains true, that the prime purpose of any system of education is the development of power. Even where the subjects considered are held as decidedly practical, the measure of real attainment is to be found in the ability to do for one's self. This view regards the mere knowledge of facts concerning the various branches taught in the curriculum as incidental rather than ultimate. Hence those forces and tendencies that make toward the ability to accomplish in the real work of the world especially deserve the attention of the student.

(1) *Intensity of Effort.* It is not intended by the makers of the curriculum that all the daily time in the twenty-four hours, exclusive of that devoted to sleep, meals, recitations, and the College post office, shall be given over to study. Such a plan is neither desirable nor necessary. It is certain that a large number of students for various reasons feel that they must approximate this plan in order to make a creditable record. The best solution for such cases, and indeed for any case, is contained in the word concentration. I regard this word as the most important factor in success as a student. It may be difficult to secure this habit of mind at once, but it can be developed. Push your work hard while it is before you to be done. Dismiss a score of wandering or irrelevant thoughts. Allow the one thing under consideration to take complete possession of the mind. If some genial fellow student drops in to help you while away a few hours of valuable time, politely inform him of a previous standing engagement and he will doubtless take the hint, as he also usually means well. Such a habit will learn lessons in a shorter time, maintain

interest in the work, and allow more time for outside duties and pleasures.

(2) *Persistence.* But concentrated effort alone will not suffice unless it be continued. It is here that that element in human nature so vital in all progress should assert itself—the will. Don't become easily discouraged and throw down the book with disparaging remarks. Have confidence in your own powers. Believe that you can do what others can. Don't always expect to remove the obstacle on the first attack, but bear in mind the familiar motto of perseverance. The matchless inventor, Edison, often remains in his laboratory until four o'clock in the morning, striving with utmost persistency to wrest another secret from nature and astonish the world. Paul Jones, on the deck of his battleship inspiring his men with the ringing declaration, "I have not yet begun to fight," commands our unqualified admiration. College life, though highly enjoyable, is not an especially easy one for the ambitious student, and a never-give-up spirit is an available asset.

(3) *Economy of Time.* In a life filled with multifarious duties the question of how to make the most of the fleeting hours becomes one of supreme importance. The successful man of affairs has to consider this problem early and often. He soon realizes the truth of the saying, "time is money," and finds that some sort of system becomes necessary. So likewise the student should have a plan and in general adhere to it, or otherwise he is liable to drift. Regularity of habits conduces to economy of time. A vacant hour in the morning should be utilized, not wasted. Calculate beforehand how to spend that portion of your schedule, and when it arrives the time will not be frittered away. Be systematic. It is a splendid habit to acquire which will work wonders simply through the force of accumulation. Do not misunderstand me as advocating that you turn yourself into a walking mechanism and go round regulating your student life with watch in hand. This is another instance where "the letter killeth but the spirit maketh alive."

(4) *Participation in Matters of General Interest.* There is a school life as well as an individual life. Just as in the larger field of activity the most useful men and women recognize the claims of public duties and make the interest of the community their own, so in the college the student should regard himself as a member of an organization and accord it his loyal support in all

matters that make for the rightful extension of its influence. The one who wraps himself up in the folds of exclusiveness, who goes his way extracting much and yielding little, is sure to find at the end a one-sided development and a sadly deficient preparation for the work of the world. That sometimes rather intangible thing called "college spirit" has its proper place. By way of illustration may be cited the case of college athletic teams. The fact that they stand as representatives of the institution at home and abroad makes them deserve the support of every student if for no other reason. One cannot live to himself alone. He is a part of society, of organized life. And the college world affords opportunities for the exercise of the same activities that are called into operation in any other region of responsibilities.

The writer is well aware that the foregoing remarks contain nothing new, and indeed must appear trite to the average reader. At any rate, the few suggestions contained will do no harm. There is no time better than the present in which to meditate upon the plans and purposes calculated to bring to the student the best in college life.

B. L. REMICK

EXECUTIVE ABILITY ON THE FARM.

THERE used to be a saying that anybody could be a farmer. Fortunately, this kind of sentiment is fast disappearing. Brains are essential to success in farming as well as to success in the law, in medicine, or in the ministry. Perhaps a few illustrations will explain.

For a number of years alfalfa has been known to be a most excellent crop as hay for cattle, and pasture for horses and hogs. It is fifty per cent better feed, pound for pound, than red clover and out-yields the latter by one hundred per cent. Its roots penetrate the soil to the depth of twenty, thirty or forty feet, and one official record says they go as far as one hundred twenty-nine feet. This enables it to stand protracted dry spells. Being a leguminous plant, its roots are covered with little nodules or tubercles that are the homes of micro-organisms that have the power to absorb free nitrogen from the air and make it available for plant food. This enables the alfalfa to produce a large amount of nitrogenous feed and at the same time materially increase the fertility of the soil. These qualities make alfalfa by far the best

and most economical rough feed in the hands of the farmer. Although alfalfa has been known in America for nearly fifty years, it was a long time before any considerable number of farmers raised it. Even after it was introduced into a locality it was looked upon with suspicion and its adaptability to any particular farm questioned. In the eastern part of Kansas prominent agricultural men declared that alfalfa could not be raised in their county. The experience of the last ten years has demonstrated that it can be grown in every county in the State, and makes exceptionally high yields in the eastern third of the State. This change is not due, as intimated by some, to climatic conditions, but is a product of man's brain, the result of studying the nature and characteristics of the plant, and surrounding the seed with such conditions as regards firmness of soil, time of seeding, moisture, care of young plants, disking old plants, etc., as will insure success. Those who had the brain power and executive ability to study the needs of the plant and to bring together those conditions essential to success are the men who are to-day reaping handsome rewards for the exercise of their brains. One man in Pottawatomie county realized, this past dry summer, over \$82 for each acre of his alfalfa land. Another man in Reno county realized over \$52 per acre, with prospects of a good fourth crop, and a third man in Dickinson county reports over \$50 per acre. These are only samples of a large number of similar cases which might be given.

When the benefits to be derived from private dairying or a newly established creamery are brought before the public many farmers become intoxicated over the prospects and every cow in the community, regardless of quality, is drafted to contribute her mite to the milk pail. The result is frequently disastrous to the dairy industry. The poor cows not only run their owner in debt for their feed and care, but the profits from the good cows are lost sight of in the poor average of the herd. Successful dairying is a business proposition and the conditions of success should be studied the same as any mercantile business is studied. Experience shows that when we take into consideration the cost of labor, the interest on the money invested and the risks (or insurance) involved, a cow must yield dairy products worth at least \$7.45 above the cost of her feed, besides the value of the calf, before she can be handled at a profit. The College herd of twenty-eight cows

consumed an average of twenty-three hundred fifty pounds of grain and sixty-one hundred sixty-six pounds of roughness per head per annum. At the lowest calculation, this would be worth \$25. Add the \$7.45 and we have \$32.45, the amount necessary to realize from a cow in order to pay expenses. With milk testing four per cent butter fat, worth an average of seventeen cents per pound, a cow must give forty-seven hundred seventy-two pounds (five hundred fifty-five gallons) during the year before she is a profitable cow. A milch cow gives milk about three hundred days in the year. This would require that she yield an average of fifteen and eight-tenths pounds (one and eight-tenths gallons) daily. As a matter of fact, there are a good many cows that do not come up to this standard. The Kansas Agricultural College found that twenty-five per cent of the herd of common cows purchased in central Kansas run the institution in debt for feed and labor. Had it been possible to have eliminated this twenty-five per cent of unprofitable cows the herd would have averaged an income of \$48.92 per cow instead of \$43.58, or an increase of \$5.34 per cow. Since it requires \$32.45 to pay for keeping and caring for a milch cow, the profit must come from those cows whose products are worth more than this amount. It will then be seen that the cow that yields \$40 income is worth only half as much as the cow that yields \$47.55 worth of products. This shows how it is possible for one good cow to be worth as much to a man as two, three, or even four, poor or medium cows. Here again is the opportunity for the display of intelligent forethought and executive ability.

While attending a farmers' institute in Leavenworth county, the writer met a banker and merchant who saved many farmers from becoming panic stricken during last summer's dry spell. Many of the farmers came to him and stated that they would be obliged to sell their stock at a considerable sacrifice. He advised them not to do it and kindly offered to loan them money if they needed it to tide over the fall and winter. At the same time that he gave this advice to his neighbors he went to Kansas City and purchased one hundred ninety-seven head of cows for himself at about \$18 per head. A few weeks later, when the rains came, these same cattle were sold at figures ranging from \$30 to \$40 per head. While this banker and merchant was making his hundreds and even thousands of dollars, the farmers of that neighbor-

hood were adding much to his laurels because of the excellent advice he gave them about holding their stock. Here the need of executive ability is apparent in farmers being prepared for an unfavorable season and being ready to buy when others sell, and sell when others buy.

The above examples illustrating the need of executive ability on the farm are only a few selected from many that might be given. Every phase of agricultural work, as horticulture, entomology, veterinary science, botany, chemistry, physics, and mechanics, allow for a wonderful display of brain power. The young man starting out in life has an inviting and remunerative field for his labors. If he is not so situated that he can use that kind of ability on a farm of his own, he can find others who are ready to employ him and pay him well whenever he can demonstrate the possession of executive ability.

D. H. OTIS.

THE PRAIRIE-DOG EXPERIMENTS.

SOME newspaper men of the State have been finding employment for leisure hours in the invention of items concerning the progress of experiments now being conducted for determining the most efficient and cheapest methods to destroy the prairie-dogs and gophers of Kansas. It is needless to say that nearly all these articles have been purely imaginary. The College has not yet published the results of any of the investigations, for the reason that they have not been completed. One statement made by the press has been viciously misleading. The appropriation for the experiments has not been exhausted. Of the total amount appropriated, less than \$400 has been expended. The investigations that have been made up to the present time have been entirely satisfactory and will result in greatly cheapening the task of exterminating the prairie-dogs.

The present agent of the Experiment Station Council was not employed until the July meeting of the Board of Regents. Owing to the fact that it was in the midst of the migrating season for the prairie-dogs, field experiments were not undertaken at once. A circular letter was sent out to all the township trustees of the State asking for particulars as to the distribution of prairie-dogs and gophers and the amount of damage done by them. The replies concerning prairie-dogs have been tabulated and show that

the amount of damage done by them has not been exaggerated by people from the short-grass section of the State.

Prairie-dogs are reported present in sixty eight counties of Kansas, and their numbers range from half-acre villages in Douglas, Cowley and Butler counties to continuous villages of whole sections of land in the western counties. Finney and Gove counties lead, with about 200,000 acres in each. The total acreage of dog towns reported in the State is not far from two millions. Allowing fifty of the animals to each acre would make the actual prairie-dog population of the State one hundred millions. The annual increase of these, if not checked in some manner, would more than double the number. Fortunately, they have many natural enemies. Owls and rattlesnakes feed on the young. Badgers, skunks, minks, weasels, coyotes, and other animals destroy great numbers. Disease and drought also do their share in lessening their number. But in spite of these the increase is enormous. The problem before the people of the West is to save their pasture lands from the ever-widening spread of these pests. The farmers have been generally successful in clearing their occupied lands of them; but the large tracts of pasture owned by non-residents or the government are overrun by prairie-dogs, and they soon come back into the smaller pastures and the wheat lands. The United States government, through the department of agriculture, has also begun experiments upon the work of extermination. The agent of the department is co-operating with us, and the results of our work will undoubtedly have a wide influence for good. It is hoped that a preliminary press bulletin, giving results of experiments and recommendations, will soon be ready for distribution.

C. F. Doane, '96, dairyman of the Maryland Agricultural Experiment Station, is the chief author of Bulletin No. 77 of that station. This bulletin gives a complete account of a large number of digestion experiments in feeding milk to calves; also a few with children. The chief object of this experiment was to determine the relative digestibility of raw, Pasteurized and cooked milk, also of whole milk and skim-milk. The bulletin constitutes a valuable addition to our knowledge of these substances. In harmony with previous investigations, raw milk was found to be slightly more digestible than either Pasteurized or cooked milk. The skim-milk was as digestible as the whole milk.

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LOCAL NOTES.

The mid-term examinations will be held on November 2.

Harry C. Rushmore, '79, was a welcome visitor at his alma mater last Wednesday morning.

President Nichols returned from Chicago, where he had gone on College business, last Wednesday.

Reverend Reby, of Sylvan Grove, was a visitor at College last Tuesday and led in the morning exercises.

Two Red Polled, one Hereford and one Ayrshire calf have been added to the College herd during the past week.

In the minutes of the Board last week, the committee to purchase a span of mares should have been Regerts McDowell and Satterthwaite.

The baseball game between K. S. A. C. and the Manhattan team resulted in a victory for the town team by the narrow margin of one score.

Professor Walters attended a farmers' institute at Hiawatha on Thursday last, and on Saturday spoke at a teachers' convention at the same place.

President Nichols left yesterday for Lawrence, Baldwin, Emporia, and other college towns, in company with other members of the State Board of Education.

John Warner, Manhattan, has donated to the College a choice Short Horn heifer of the Cruickshank strain. She will be a welcome addition to our judging school.

Our football team played Bethany College, Lindsborg, yesterday. At the time of going to press the score had not been received. This is our first game this season.

J. C. Robison, Towanda, Kan., has presented to the College the trio of Imperial Pekin ducks that won first prize at the State Poultry Show last winter. These ducks won three first and one second premiums at the show.

The stockmen of the State seem to appreciate the efforts of the College to protect stock against disease. The Veterinary Department sent out nearly fifteen thousand doses of blackleg vaccine during the month of September.

Professor Willard and Assistant Shoemith attended farmers' institutes last week at Blue Mound on Thursday, New Lancaster on Friday, and Bucyrus on Saturday.

A letter from Professor Eyer, now on leave of absence in Chicago University, announces the arrival in his family of a handsome baby girl. The INDUSTRIALIST congratulates.

The Veterinary Department has begun some experiments with a disease attacking the mouths of cattle that made its appearance in various parts of the State during the dry weather, but at the present time seems to be rapidly disappearing.

Mr. Z. L. Bliss, '00, was shaking hands with old friends at College last week. He is now connected with the bureau of forestry and was on his way to Washington. He will return by way of Farlington, Kan., Oklahoma, and Dundee, Ill.

Hon. William Cody, alias "Buffalo Bill," was an interested visitor at the Agricultural College last Tuesday morning. He was on his way to Oklahoma, from Lincoln, Neb., where he had been to make arrangements for the sale of his book, an autobiography of himself.

The College now has ten breeds of cattle: The Aberdeen-Angus, Galloway, Hereford, and Short Horn, representing beef breeds, the Ayrshire, Guernsey, Jersey, and Holstein, representing dairy breeds, and the Red Polled and Polled Durham representing dual purpose breeds.

The College has twenty-five pure-bred hogs representing four breeds—Poland China, Berkshire, Duroc-Jersey, and Tamworth. The first three breeds are familiar to Kansas farmers. The Tamworth is the famous bacon breed of England and Canada and excites much interest from our visitors.

The tanners have been at work for about a week repairing the roofs and gutters of the Main building and Agricultural Hall. The gutters of the latter are of such a peculiar form that it is feared that frequent repairs will become necessary in the future. When will architects learn that to shed water is the prime function of a roof?

The Kansas State Agricultural College has just received a shipment from Canada of four pure-bred Ayrshire cattle—a bull and three heifers. The bull was a prize winner at the Pan-American and Toronto Exhibitions. One of the heifers is from the famous Ogilvie herd, and her sire is considered to be the best Ayrshire bull on the continent to-day. Another of the College heifers gave eight thousand pounds of milk and nearly four hundred pounds of butter in a year when a two year-old. The Ayrshires are large yielders of milk and are particularly adapted to sections of the State where the grass is short, as they can travel twenty miles a day in search of food and at the same time give a good yield of milk.

The *Breeders' Gazette* publishes an account of the conference of Indiana institute workers. Among the speakers was mentioned Miss Laura G. Day, of Kansas, who has been secured to give instruction in domestic economy at Purdue University during the winter term, and who spoke on "Practical Education for the Homemaker."

The students have again arranged for a lecture course for the present school year. The course will comprise two scientific and three literary lectures, interspersed by three concerts. The tickets for the season will be \$2, \$1.75, and \$1.50, and may be obtained of any member of a committee of sixteen who are managing the matter.

The Farm Department received a letter last week from one of the largest Aberdeen-Angus breeders in the West asking for a College graduate to take charge of his herd. No man was available, as the last man the department had who was fitted for such work left two months ago to take a similar position, and he had five offers at one time, not one of which paid less than \$40 per month and board.

An associated press dispatch from Washington speaks of one of our alumni as follows: "The department of agriculture finally has succeeded in securing the Jordan almond, exportation of which has been rigorously prohibited by Spain for some years, and this government will now experiment with it to determine the best localities for growing it. This species of almond is regarded by the agricultural authorities as the finest in the world, but only its fruit heretofore has reached this country, the bush being jealously guarded in Spain. The bush has been forwarded here by the department's agent, who is exploring that section of the world for rare plants. This agent is W. T. Swingle, of Manhattan, Kan., a graduate of the Kansas State Agricultural College."

A year ago Ed. H. Webster, who was assistant in dairying at Kansas Agricultural College, went to Ames, Iowa, Agricultural College and accepting a similar position there became also the student of Prof. G. L. McKay, who is beyond any question the foremost butter maker of the American continent. Out of eight hundred twenty-nine packages of butter entered in competition at the National Buttermaker's Convention at St. Paul last winter Mr. Webster's butter was that receiving the highest score. It is the opinion of the *Dairy Age* that Mr. Webster ranks next in his profession to Professor McKay. He is Kansas bred and educated, and Kansas could not afford that his energies be devoted to the building up of the butter business of other states. Mr. Webster, on June 1, became connected with the Continental Creamery Company, of Topeka, at which place he is taking care of the scientific end of more than twenty-five thousand pounds of butter manufactured daily.—*Dairy Age*.

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No. 4

EXCURSION OF STUDENTS TO KANSAS CITY.

The *Drovers Telegram*, of Kansas City, makes the following pertinent remarks about the efforts of the Agricultural College to have the students of the Agricultural course attend the American Cattle Show at Kansas City this week:

"One of the most interesting side issues in connection with the American Royal cattle show next week will be the presence in Kansas City of perhaps two hundred or more students of agricultural colleges who will come to this city to study the fancy cattle industry in its perfection. One week at such a show will be worth a year in college, particularly if the student is guided in his study and sight-seeing by an instructor qualified to tutor him in all the details of fancy stockdom.

"It is not yet known how many students will come from the Oklahoma Agricultural College, at Stillwater, but Manhattan will introduce from 100 to 200 Jayhawkers to the fancy stock in this city next week. Among the 100 or 200 who will come from Manhattan, there will be 15 or 20 farmers' daughters who are interested in good stock. The up-to-date farmer's daughter who is accustomed to witness the daily antics and gyrations of a \$500 calf as it gambols about the farm premises can talk fancy stock with the most progressive and observing country lad. The presence of so many fair ones from the rural districts of Kansas will lend an additional charm to the already long list.

"A special train has been chartered from Manhattan to Kansas City which will arrive in Kansas City next Friday morning at 9 o'clock and will leave Saturday evening at 6 o'clock. This gives the students two full days at the exhibition, which, although not so much time as they would wish to spend here, will give them ample opportunity to acquire a large amount of valuable information. They will be present on Saturday afternoon at the grand parade of prize winners in which all of the ribbon takers of three breeds will participate.

"The delegation will be in charge of Prof. H. M. Cottrell, who is at the head of the Agricultural Department and is superintendent of the Experiment Station farm at Manhattan. Professor Cottrell has been an indefatigable worker and he would like to see a department of student judging added to the American Royal. In his opinion the students would take a great deal more interest in the event and in the study of pure-bred cattle if a competitive contest could be arranged among the various agricultural colleges. In a letter to the *Telegram* to day Professor Cottrell dwells on the objects of the students in coming. Among other things he says:

"The students have two objects in view—to study model beef animals and to become acquainted with the best breeders of good beef cattle. Our students are especially interested in fitting themselves as judges of cattle, and this is the best opportunity they have for studying so large a number of good animals. Our students come chiefly from farms and will go back to these farms as soon as they have finished their college work. They want to get well acquainted with the breeders of good cattle so that they will know where to buy them when they begin stock raising.

"A secondary consideration in making the visit is to try and get the managers of the cattle show interested in student stock judging so that they will start the work another year. The Chicago exposition offered over \$700 in prizes last year for students' stock judging and found it so profitable that they offered \$1,200 this year. The result has been that during the past year the agricultural colleges of Indiana, Illinois, Wisconsin, Minnesota and Iowa have been 'hotbeds' of enthusiasm in regard to live stock. The whole body of students are interested, they work hard the entire year fitting themselves to compete for these prizes, they study hundreds of animals, become acquainted with the leading herds, and after judging beef cattle follow them through the slaughter-houses to test the value of external judging.

"Such work pays the breeder well because the students and their friends become good buyers of the best stock. It pays the Exposition managers well because the friends of the students attend the shows. It gives the students the best possible practical training.

"The Kansas City show has not considered this work, yet in Kansas City territory there are the agricultural colleges of

Kansas, Missouri, Iowa, Nebraska, Colorado, Wyoming, New Mexico, Arizona, Oklahoma, Texas, and Arkansas. With the exception of Iowa and Missouri, none of these colleges can conveniently send students to Chicago, but all could go to Kansas City. In a student judging contest at Kansas City we could send 500 students; we could hardly hope to send over 10 to Chicago.

“‘It will pay the breeders to push students’ stock judging at the Kansas City show as every student who becomes interested in the work goes home and becomes active in pushing the purchase of good cattle in his community.’

“Swift & Company have invited the students to go through their great packing plant, and this alone will be worth the cost of the trip.”

THE SHORT COURSE IN DOMESTIC SCIENCE.

THE short course in Domestic Science opened Tuesday, September 24, with thirty one young women registered in the first year and nine in the second year. In the Domestic Science Department the first-year students have been taught to prepare and serve vegetables in many delightful ways. A number of lessons will be devoted to making soups and cooking meats; then they will begin the study of baking-powder mixtures and making yeast breads. The second-year students show a most tempting array of fruit juices, jellies and canned fruits as the result of the first few weeks of work. At present they are devoting themselves to fancy and invalid cookery, and the latter part of the term will be given up to lessons on table setting, serving, and the discussion of proper food combinations.

In the Domestic Art Department the entering students have completed the model book and are just beginning work on their own garments. They are expected to accomplish the same amount of work that is given in four terms of regular College work. The second-year students are busy making woolen dresses. Each girl has drafted her own skirt pattern, the skirts have been cut, fitted, and are almost finished, and the students are now learning the use of a tailor system and are drafting waist patterns. A little later there will be a few lessons in millinery.

The short course is designed for young women who cannot enter the regular College course, and that it is proving very attractive to many of the young women of the State is very evident.

For years there has been a prevailing idea that any women could keep house, and women have rushed ignorantly into all the responsibilities of caterer, cook and seamstress without any knowledge of the importance of the new duties. Some of them have learned much after years of bitter experience; others are still struggling on, weary, discouraged, and wondering why luck is always against them. Fortunately for the coming generation, people are waking up to the fact that good housekeeping is a science; that luck does not enter into baking, brewing, cutting and making garments, but that knowledge is the power, and that when we have a sufficient knowledge of the forces we are using our products will always be perfect. The trained housekeeper will not say, "I had good luck to-day," but, "I was successful because I knew just what I was trying to do and how to do it." HARRIET HOWELL.

RULES CONCERNING GRADUATE DEGREES.

1. The degree of Master of Science will be conferred in course upon graduates of the College who have received eighteen credits in an approved graduate course, each credit being equivalent to a full study pursued for three months.

2. Courses will be approved which are in line with any one of the regular undergraduate courses, and includes at least six credits in the biological or the physical sciences, or mathematics, and at least six credits in technical or industrial branches.

3. The principal line of study shall be designated as the major, and another line as the minor study. As nearly as may be, one-third of the time is to be given to the minor and two-thirds to the major study; including in the latter such scientific, mathematical or technical branches as contribute directly to it. The minor study must fill a logical place in the scheme so that the work as a whole may possess unity.

4. Applications for graduate study shall be passed upon by the committee on graduate courses and referred by them to the Faculty for action. If approved by the Faculty, the candidate shall obtain an assignment at the beginning of each term for the studies intended to be pursued during the ensuing term. At the close of each term, examinations shall be given in all branches, and the candidate shall be reported as "passed" or "not passed."

5. Applications for entrance upon graduate study and for

changes in major or minor subjects must be presented to the committee on graduate courses within the first week of a College term.

6. Non-resident candidates will be required to send to the professors in charge of the departments of their major and minor subjects a full and complete report at the middle and end of each term, of the work accomplished within that period. Failure to comply with this requirement will cause the candidate to be dropped from the roll of graduate students, to be reinstated only upon approval of the Faculty. At the end of each term, at the option of the instructors, and at a time and place to be designated by them, an examination may be given to non-resident candidates in the major and minor subjects.

7. Upon the completion of the required work, and by the 15th day of May of the year in which the degree is desired, each candidate shall present to the committee on graduate courses, typewritten and in duplicate, a satisfactory thesis involving original work along the line of his major subject. Thereupon a special examining committee of three shall be appointed from the Faculty, of whom one member shall represent the major subject, and another the minor, who shall examine the candidate orally on the subject-matter of his thesis, and report the result of such examination to the Faculty. Upon receipt of the report of this committee, the Faculty will take action concerning the recommendation of the candidate for the degree.

8. The subject of the thesis must be presented to the committee on graduate courses for approval by the first day of January preceding the Commencement at which the degree is desired.

The United States civil service commissioner announces that on November 23 an examination will be held, in any city where postal free delivery has been established, for the position of clerk and assistant in the bureau of plant industry. This position will pay a salary of \$1000 per year. On October 22 examinations will likewise be held for the position of assistant in the bureau of animal industry, dairy division, and an assistant in the bureau of plant industry, division of pomology. The former position will pay a salary of \$1200; the salary of the latter is not stated in the official announcement. Persons who desire to compete should at once apply to the U. P. Civil Service Commission, Washington, D. C., for applicant forms Nos. 304 and 375.

FALL-TERM PROGRAM, SHOWING INSTRUCTOR,

| INSTRUCTOR. | First Hour. (9:05 to 9:50) | Second Hour. (9:55 to 10:40) | Third Hour. (10:45 to 11:30) | Fourth Hour. (11:35 to 12:20) |
|------------------------------|--|---------------------------------|---------------------------------|----------------------------------|
| Walters..... | Proj. Draw ....19 | Des. Geom.....15 | Proj. Draw....38 | ..... |
| Evans..... | Drawing.....30 | ..... | Obj. Draw 8 | Obj. Draw.....11 |
| Brown..... | Singing, Notation, Band, Orchestra | ..... | ..... | ..... |
| Brown, R. H..... | Orchestral Instruments | ..... | ..... | ..... |
| Harris..... | Piano, 36 hours per week | ..... | ..... | ..... |
| Hutto..... | Piano, 6 hours per week | ..... | ..... | ..... |
| Willard ³ | Ag. Chem.....15 | ..... | ..... | Chem. ² 9 |
| Weida..... | ..... | Chem. I..... 40 | Chem. I..... 44 | Chem. I..... 46 |
| Cottrell ³ | Farmers' Institutes | ..... | ..... | ..... |
| Shoesmith ³..... | ..... | ..... | ..... | ..... |
| Popenoe ³ | Entomology ....28 | Zoology.....25 | ..... | ..... |
| Norton ³ | Entomology....1 | ..... | ..... | ..... |
| Remick..... | Anal. Geom....27 | Geometry II. 16 | Algebra II....42 | Geometry II....24 |
| Anderson..... | Algebra I.....43 | Algebra II....47 | Geometry I....39 | Algebra I.....41 |
| Goodell..... | Ind. History...22 | Ind. History...30 | Gen. History...40 | Gen. History...39 |
| Roberts ³ | Botany.....46 | ..... | Botany.....37 | Botany.....44 |
| McKeever..... | German..... 9 | Hist. of Ed....17 | Readings II...33 | Readings II...30 |
| Berry..... | Themes..... 34 | Themes.....37 | Rhetoric.....56 | Rhetoric.....64 |
| Rupp..... | Readings I....43 | Readings I....34 | Composition...43 | Composition...31 |
| Hartman..... | Elect. Mag 6 | ..... | Physics I.....19 | Physics I.....33 |
| Hamilton..... | El. Physics....58 | El. Physics....53 | Algebra II....40 | Physics ¹ 9 |
| Clure..... | Oratory I.....38 | Oratory I.....24 | Oratory IV....15 | Oratory IV....19 |
| McCormick..... | ..... | ..... | Mech. Mat.... 5 | Eng. Design.... 4 |
| Sawdon..... | Algebra III....33 | Geometry I....23 | ..... | Algebra III....38 |
| House..... | Wood-work....44 | Wood-work....44 | Wood-work....44 | Wood-work....44 |
| Wabnitz..... | Machine Work, Mondays 20; Apprentices 10 | ..... | ..... | ..... |
| Gasser..... | ..... | ..... | ..... | ..... |
| Otis ³ | Farmers' Institutes | ..... | ..... | ..... |
| McIntyre..... | ..... | Chem. Cook...19 | ..... | ..... |
| Pritner..... | ..... | Cook. Short Course | 9 | ..... |
| Agnew..... | ..... | ..... | ..... | ..... |
| Mayo ³ | Anatomy.....14 | Farm Hyg. ....12 | Physiology....45 | ..... |
| Kinsley ³ | Physiology....10 | Bacteriology..15 | Bacteriology..19 | Physiology....49 |
| Howell..... | ..... | Sewing II.....20 | Sewing III.... 8 | Sewing III....10 |
| Jones..... | Sewing I. 20 | Sewing II.....13 | Sewing I.....19 | Sewing I.....20 |
| Pincomb..... | ..... | Short-course Sewing I | ..... | .....29 |
| Rickman ⁴ | Printing..... 7 | Printing..... 9 | Printing.....15 | ..... |
| McFarland..... | Arithmetic A.59 | Bookkeeping..38 | Bookkeeping..51 | Bookkeeping..51 |
| Rice..... | Composition...48 | Composition...44 | Grammar A....34 | Grammar A....27 |
| Holroyd..... | Arithmetic B..22 | Algebra I.....29 | Grammar B....43 | Arithmetic B..41 |
| Dickens ³ | Horticulture...51 | Horticulture..45 | ..... | ..... |
| Clemons..... | ..... | ..... | ..... | Bookkeeping...46 |
| Mather..... | U. S. History..28 | U. S. History..33 | ..... | ..... |
| Dean..... | ..... | Algebra I.....33 | Algebra I.....39 | ..... |
| Spilman..... | Readings I....33 | ..... | ..... | ..... |
| Mudge..... | ..... | Grammar B....21 | ..... | ..... |
| Ritchie..... | ..... | U. S. History..28 | ..... | ..... |

¹ First half-term.² Second half-term.³ Experiment Station and Farmers' Institute work.⁴ Three apprentices ten hours a day.

| Fifth Hour. (1:30 to 2:30) | Sixth Hour. 2:35 to 3:35) | Seventh Hour. (3:50 to 4:50) | Eighth Hour. (4:55 to 5:55) |
|---------------------------------|------------------------------------|---------------------------------|--------------------------------|
| Geometrical Drawing..... | Tu., 31 | | |
| Free-hand Drawing..... | Wed., 63 | | |
| Free-hand Drawing..... | Tu. & Th., 94 | | |
| Object Drawing..... | W. & F., 92 | | |
| | | | |
| Analytical Chemistry..... | 32 | Advanced Chemistry..... | 4 |
| Chemical Laboratory..... | | | |
| | | | |
| Stock Judging..... | 15 | | |
| Zoological Laboratory..... | 12 | | |
| Zoological Laboratory..... | 12 | Zoological Laboratory..... | 2 |
| | | | |
| Botany IX..... | 5 | | |
| | | | |
| Electrical Measurements..... | W. & F., 6 | Agricultural Physics..... | Saturdays, 13 |
| Oratory III..... | 15 | | |
| | | | |
| Engineering Laboratory..... | Tu. & Th., 4 | Shop Lectures..... | Wednesdays, 19 |
| Wood-work..... | Tu. & Th., 19; W. & F., 26 | Machine Work..... | Tu. & Th., 9 |
| Machine Work..... | Tu. & Th., 21; W. & F., 33 | | |
| | | | |
| Domestic Science I, W. & F., 27 | Therapeutic Cookery, Tu. & Th., 19 | Hygiene...7:50 S., 90 | |
| Cook. Short Course..... | 31 | | |
| Hygiene..... | 7:50 A. M., Tuesdays, 260 | Bacteriology Laboratory..... | Tuesdays, 9 |
| Bacteriology Laboratory..... | T. 8, W. 9, F. 8 | | |
| Dressmaking..... | 10 | | |
| Sewing IV..... | Tu. & Th., 15 | | |
| Printing..... | 13 | | |
| | | | |
| Writ. & Spell..... | 13 | Horticulture..... | Tu. & Th., 28 |
| | | | |

THE INDUSTRIALIST.

*Published weekly during the College year by the
Printing Department of the*

Kansas State Agricultural College.
Manhattan, Kansas.

PRES. E. R. NICHOLS..... Editor-in-Chief
PROF. J. D. WALTERS..... Local Editor
PROF. J. T. WILLARD..... Alumni Editor

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LOCAL NOTES.

Professor Mayo has moved into the Huse property, on Houston street.

Ed. Webster has moved into the Professor Lee residence, on College Hill.

The Riley County Educational Association met at Randolph last Saturday.

Messrs. E. W. Curtis and J. W. Morris, of Garnett, visited College on Friday, looking over the plans of the dairy school.

The late gardens planted after the drought are furnishing vegetables, out of season, for the cooking classes, and also some for market.

The following regarding the Fort Hays lands will be welcome news: "Washington, D.C., October 19, 1901.—Decision in favor of State. Entries all cancelled."

R. J. Beachum, Manhattan, has donated to the College a pen of Black Menorcas. These hens lay eggs nearly as large as those of ducks. The eggs have a beautiful pearl shell.

At the meeting of the Manhattan school board last Tuesday evening a committee was appointed to investigate the advisability of securing separate rooms for the colored children.

The concert given by the Schumann Concert Company, in the College chapel Wednesday night, under the auspices of the College lecture-course committee, was well patronized.

The reading-room in St. Paul's parish house, 611 Poyntz Avenue, is open every Wednesday evening from 7:30 to 9:30. Students and officers of the College are invited to use the magazines on file there.

On Monday, October 14, at Athletic Park, a crowd of about two hundred fifty people saw the Agricultural College football team defeat the College of Emporia eleven, by a score of 11 to 0, in a finely contested game, our boys making one touchdown in each half.

Thirty-nine young men are engaged this term in industrial work in the Horticultural Department. Conflicting class work makes a special Monday squad necessary. The gardens, vineyards, orchards, forcing houses and forest plantations furnish an abundance and variety of work.

The pay-roll for September of the College officers amounted to \$3827.07; that for the Station officers to \$647.50; that of the employees to \$1243.49, and that of the students to \$357.98. The total was \$6076.04.

The Smiths, Manhattan, have donated to the College a pen of Buff Plymouth Rocks. The cock heading this pen has twice been a winner of first prizes at the State Poultry Show, both times in strong competition.

Assistant G. O. Greene, of the Horticultural Department, delivered an address on "Orchard Treatment" before an institute at Junction City Saturday, October 5. The address was published in the Junction City papers.

President Nichols was absent from College week before last on account of a tour of inspection to the different colleges of the State, by the State Board of Education, of which the President of the Agricultural College is an *ex-officio* member.

The Horticultural Department is co operating with the division of pomology, department of agriculture, in a test of the keeping qualities of the different varieties of apples. The fruit is stored by the Armour Packing Company, of Kansas City.

Charles Sutton, Russell, Kan., has donated to the College the choice yearling Berkshire boar King Blossom second. This pig is a grandson of the great prize winner Golden King and his grandmother was a full sister to the undefeated Victor third.

Professor McFarland and wife, Professor McCormick and wife, Professors Remick, Hartman and Weber, and Misses Evans, Howell and McIntyre and Mrs. Weida formed a jolly party of College people who drove to Fort Riley Monday, October 14.

Professor A. S. Hitchcock, formerly professor of botany in this College, visited here last Wednesday forenoon. He was making arrangements to move his family to Washington, D. C., where he is employed as an expert in the department of agriculture.

The phyllocactus in the south greenhouse was on exhibition Tuesday and Wednesday evenings. The number and perfection of the blossoms have seldom been equalled. Two of the younger plants were in bloom at the same time and were used in the stage decorations Wednesday evening.

This year, for the first time, a course in the physics of agriculture will be given as an elective for seniors in the Agriculture course. The course is based on King's text-book and will be given by Professor Hartman. Already a number have manifested an intention of taking the work.

The College team, under Wade Moore's coaching, defeated the strong Lindsborg team Monday, by a score of twelve to five, both of our touchdowns being made by Moore, one in the first half after about ten minutes of play and the other just before the end of the last half, Moore kicking both goals.

The contractor and subcontractors of the new Physical-Science building are straining every nerve to advance the work before cold weather sets in. There are about thirty men at work on the walls, ten are working in the rock quarries, a dozen or more are teaming, and ten are working at carpenter work.

The city is building a handsome brick walk along the east side of Ninth street, from the Park Place dormitories to Leavenworth street. We hear that it is intended to extend this sidewalk for four or five blocks on either side before next Commencement. Let the good work go on; these walks are badly needed.

The following members of the Faculty are taking their turn at the morning exercises in chapel: President Nichols, Mrs. Calvin, Professors Clure, Goodell, Hartman, McFarland, McKeever, Mayo, Remick, Walters, and Weida. The Faculty members attend these exercises in a body, and most of them are as regular at morning exercises as they are in their class-room work.

The specific awards made by the Pan American Exposition for fruit exhibited by the Horticultural Department of this College were for fruit exhibit, exhibit of grapes, and exhibit of plums. This fruit was also included in the display made by the State Horticultural Society, which received the Wilder silver medal, the highest honor bestowed by the American Pomological Society. Not so bad for Kansas in a poor year.

Miss Hetty Grace Evans, the newly elected assistant in Industrial Art, is a graduate of the high school of Barry, Ill., and of the Illinois State Normal School, at Normal, of the same state. She has also attended the Massachusetts Normal Art School in Boston, where she completed the four-years' course in three years. Miss Evans comes to us well recommended and brings with her the experience of eight years of successful common-school work at Webster Groves and Jennings, suburban districts of St. Louis.

It seems at this writing that the excursion of the agricultural classes to Kansas City next Friday to see the American Cattle Show will be a grand success. The extra train will start here early on Friday morning and return late on Saturday evening. The fare will be \$2.50 per person. The fair managers have offered free tickets to all College people and reduced rates have been obtained from a number of hotels, so that the expenses will not be great. Over a hundred students have already bought their tickets and another hundred will probably do so before Thursday evening.

The work in the Military Department is progressing with greater interest than ever before. The new cadets have learned to "hep" and to take the "position of a soldier," and in a few days they will receive the long-looked for guns. The material that will make up the officers and "non coms" is superior to that of years past, and the aptitude shown by the first-year cadets for military work gives great promise for next year. A signal squad

will soon be organized and later in the term instruction will be given in artillery and hospital practice. There will be a change in the chevrons worn this year, and as but few will wear uniforms furnished by the College the battalion will present a very neat showing. As the battalion organization is not yet complete, the names of the new officers will be given later.

Mr. Ed. H. Webster, head butter maker of the Continental Creamery Company, Topeka, Kan., has resigned his position to become instructor in butter making and cheese making at the Kansas dairy school. He will also be on the experimental force and conduct experiments in butter making and cheese making throughout the year. Mr. Webster is a graduate of both the Kansas and Iowa Agricultural Colleges. He also took postgraduate work in dairying at both institutions. After working with the Meriden Creamery Company for a year and a half he took special studies under Prof. G. L. McKay, at Ames, Iowa. On account of his proficiency he was made assistant in dairying at Iowa Agricultural College. Out of eight hundred twenty-nine packages of butter entered in competition at the National Butter-makers' Convention at St. Paul last winter, Mr. Webster's butter was that receiving the highest score. Mr. Webster, on June 1, became connected with the Continental Creamery Company, of Topeka, at which place he has had charge of making more than twenty-five thousand pounds of butter daily. This training insures that every student taking dairying at the Kansas Agricultural College will receive the best scientific and practical training available, and will greatly strengthen the agricultural work.

At the September meeting of the Board of Regents of the Agricultural College a committee consisting of Regent Stewart, President Nichols and Professor Otis was appointed to arrange for running the College creamery through the entire year, which heretofore has been running only the three months of the dairy school. The Continental Creamery Company, which has a skimming station located at Manhattan, has kindly consented to abandon this territory and give it to the College. The latter expects to start operations the first of November. This enlargement will materially increase the efficiency of the dairy school. An expert butter maker and cheese maker will be hired who, in addition to looking after the regular creamery work, will give considerable time to original investigations and experimental work in butter making and cheese making. Apprentices to the number of twenty will be allowed to enter at the beginning of each quarter. Last spring all the short-course dairy students who could be recommended had secured good positions two weeks before the close of the school. Since then a large number of requests have been received for butter makers, cheese makers, and skimming-station operators, but on account of the scarcity of men very few of these positions could be filled from the College. The new arrangement will enable a much larger number to reap the benefits offered by the College and at the same time enable the College to better meet the demands made upon it for trained men.

ALUMNI AND FORMER STUDENTS.

We regret to record the death of A. W. Parrack, of the class of 1900.

R. T. Nichols, '99, is attending the medical college of Northwestern University this year.

L. B. Jolley, '01, has entered the Chicago Homœopathic Medical University. His address is 394 Hermitage Avenue.

Cornelia Weeks, second-year student 1897, has entered Teachers' College, New York City, to prepare herself to teach domestic science.

Mr. O. E. Noble, '97, and Miss Bessie Lock, '98, were married at the home of the bride in Riley, Kan., October 2. They will make their home in Hobart, Okla.—*Herald*.

E. B. Patten, '98, has returned from California, and spent a few days visiting friends at the College. He is going into the milling and grain business with his uncle, at Carthage, S. D.

F. O. Popenoe [second-year student '81], formerly owner of the *Topeka Capital*, who is mining in the mountains of Costa Rica, has been appointed by the president of that country to go to Paris to negotiate a loan.—*Lyndon Remark*.

W. J. Lightfoot, '81, is now in the employ of the government, as examiner of surveys. His position brings him a good salary, but it keeps him in the field nine months of the year. His wife, Grace Strong Lightfoot, with their two children, is living in Denver, at 4557 Twenty-seventh avenue.

J. G. Haney, '99, agricultural agent of the Chihuahua & Pacific railway, expects to visit us about the first of January. He says: "I have had a very busy and interesting summer, but would not care to begin it over again immediately. The season has not been very favorable, but more so than the Mexican."

Lieut. Geo. R. Crawford [fourth-year student '97] has received orders to proceed to Fort Leavenworth for temporary duty, and when that is finished he will go to Porto Rico and be assigned by the commanding officer of the Eleventh Infantry to either E, F, G or H company. He left for Leavenworth Tuesday.—*Mercury*.

On Wednesday morning, October 23, at 9:30 o'clock, a happy wedding took place at the home of the bride, uniting in marriage Miss Rogene Amira Scott, of Burlington, Kan., and Emil Carl Pfuetze ['90], of our city. The bride has for the past two years been a teacher of German and French in the Salina Wesleyan University. The groom is one of our most prominent business men. Mr. and Mrs. Pfuetze will be at home to their friends after November 1, at No. 397 Leavenworth street. They have the congratulations and best wishes of their many friends.—*Nationalist*.

W. L. Hall, '98, is the author of Farmers' Bulletin No. 134, "Tree Planting on Rural School Grounds." It deals with the present condition and needs of rural school grounds and indicates methods for their improvement. It also suggests important lines of study for the teacher and the school in connection with trees and forests. It should be a valuable bulletin.

Dr. T. M. Robertson, '97, a successful dentist of Coffeyville, Kan., was married to Miss Tammah Frances Stage at the home of the bride in Sibley, Iowa, September 23, 1901. After visiting with relatives in Manhattan for a few days, Dr. and Mrs. Robertson left for Coffeyville, where they will be at home to their many friends at 205 West Seventh street after October 15. — *Herald*.

Ed. H. Webster, '96, who has been winning success in the several lines of dairying, as assistant in dairying at the Iowa State Agricultural College, and as butter maker for the Continental Creamery Company, has been secured as instructor in dairying here. He will add materially to the efficiency of this line of instruction, and with Mrs. Webster (Eleanor Fryhofer, '95) will be warmly welcomed in College circles.

M. A. Carleton, '87, is the author of Farmers' Bulletin No. 139, on "Emmer: A Grain for the Semiarid Regions." Mr. Carleton regards emmer as a very promising plant for many parts of the West for the production of feed. He also thinks it may be advantageously used in wheat breeding, emmer being very resistant to rust and drought, of high gluten content, and possessing other qualities which may with advantage be impressed upon wheat.

W. O. Peterson ['97] writes from Randolph: "I have some 'drought corn' that is well-nigh a record breaker. There are twelve acres of low bottom (formerly timber land) that is yielding about sixty-five bushels an acre, stalks ten to fifteen feet, bearing extraordinary large, well-filled ears. The corn was planted the first week in May and is declared to be a wonder in these parts. With such a corn yield in such a dry year, I haven't the slightest desire to leave Kansas." — *Mail and Breeze*.

Prof. K. C. Davis, of Kansas, has been elected to the chair of horticulture and botany in West Virginia University, located at Morgantown. Professor Davis is a son of the late Congressman John Davis, of Junction City, Kan. He is a graduate of Kansas State Agricultural College at Manhattan, class of '91. A few years later he graduated from Cornell University, and since then has been instructor in botany in the Minnesota State Normal School. Professor Davis' wife was a well-known Kansas girl, Miss Fannie Waugh, daughter of Dr. Waugh, for years of McPherson and latter of Manhattan. Professor and Mrs. Davis were classmates at Manhattan. Mrs. Davis' brother, Frank A. Waugh, also of the same class, has been for several years professor of horticulture in the University of Vermont. — *Special from Morgantown, October 6*.

KANSAS STATE AGRICULTURAL COLLEGE

DAIRY SCHOOL

JANUARY 6 TO MARCH 28, 1902

Class Room Work.

Principles of Agriculture.

Dairy Bookkeeping.

Dairying.

Testing Milk and its Products.

Private Butter Making.

Creamery Butter Making.

Cheese Making.

Breeds and Breeding.

Judging Dairy Cattle.

Bacteriology.

Diseases of Dairy Animals.

Boilers and Engines.

Creamery and Dairy Practice Work.

Agricultural Hall is fitted up with commodious and well-lighted laboratory rooms. Ten thousand dollars (\$10,000) has been spent in equipment, including latest improved machinery. The practice work comes from four to five hours every afternoon and includes receiving and sampling of milk, firing boilers running engines, the handling of separators, ripening of cream, churning, salting, working, packing and shipping of butter, the testing of milk, cream, butter, and cheese, the manufacture and curing of cheese, scoring butter and cheese.

The Judging School.

Dairy cattle will be judged from March 3 to March 8. Four distinct dairy breeds (Guernseys, Jerseys, Holstein-Friesians and Ayrshires) and two dual purpose breeds (Red Polled and Polled Durham) grade Guernseys and common cows will be used for judging purposes. Dairymen of the State will be especially invited for this week. Programs consisting of the best talent in the State will be given in the evening.

Any young man interested in dairying who cannot take a regular College course should not fail to attend the short course at the Kansas State Agricultural College dairy school next winter. For further particulars address,

PRES. E. R. NICHOLS, - MANHATTAN, KAN.

Volume 28.

Number 4.

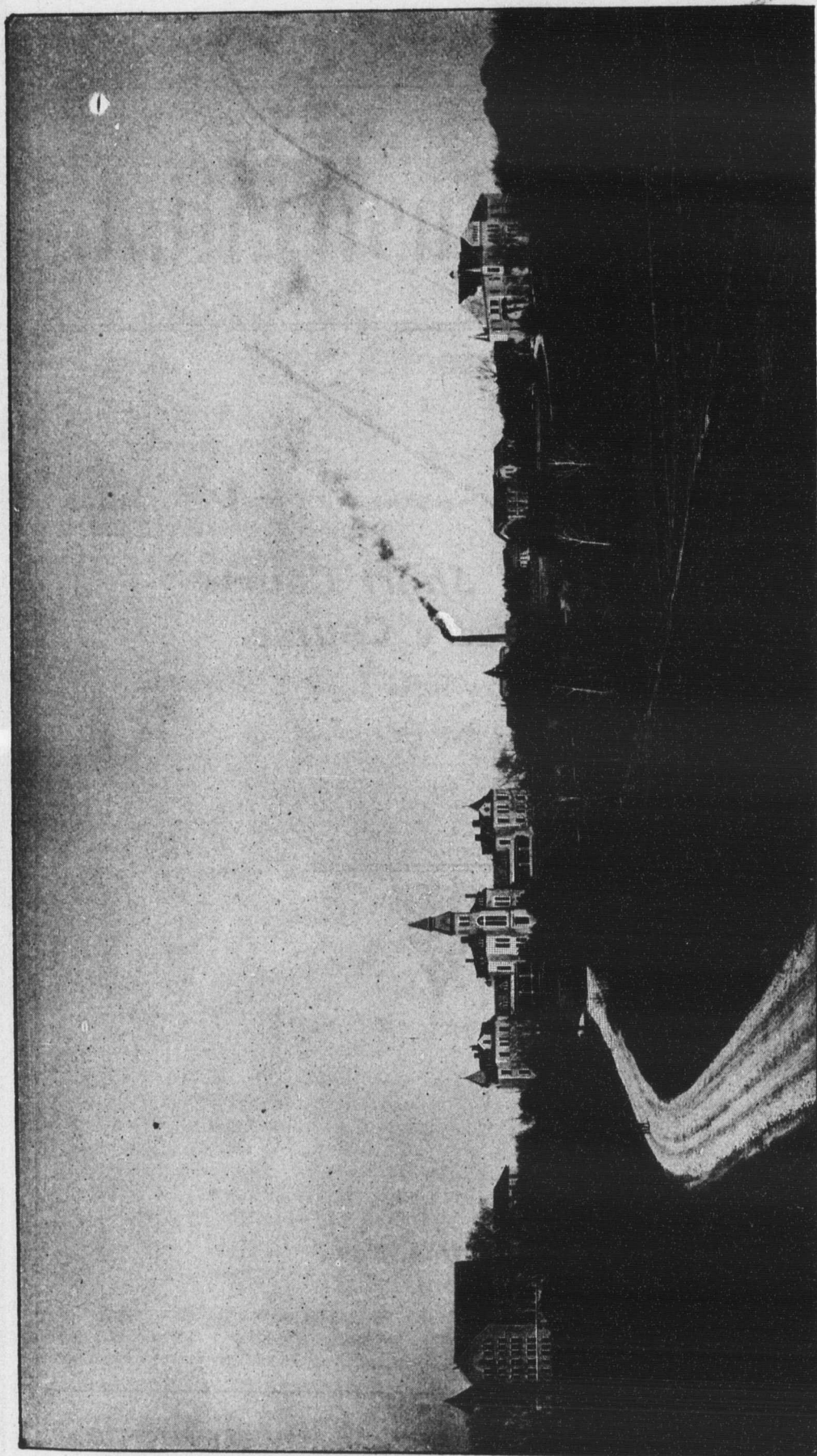
The Industrialist.

*Farmers' Short Course
and Dairy Course.*



*Manhattan, Kan.,
1901.*

ENTERED AT THE POST OFFICE AT MANHATTAN, KAN., AS SECOND-CLASS MATTER.
ACT OF JULY 16, 1894.



GENERAL VIEW OF BUILDINGS AND GROUNDS.

KANSAS STATE AGRICULTURAL COLLEGE,
MANHATTAN, KANSAS.

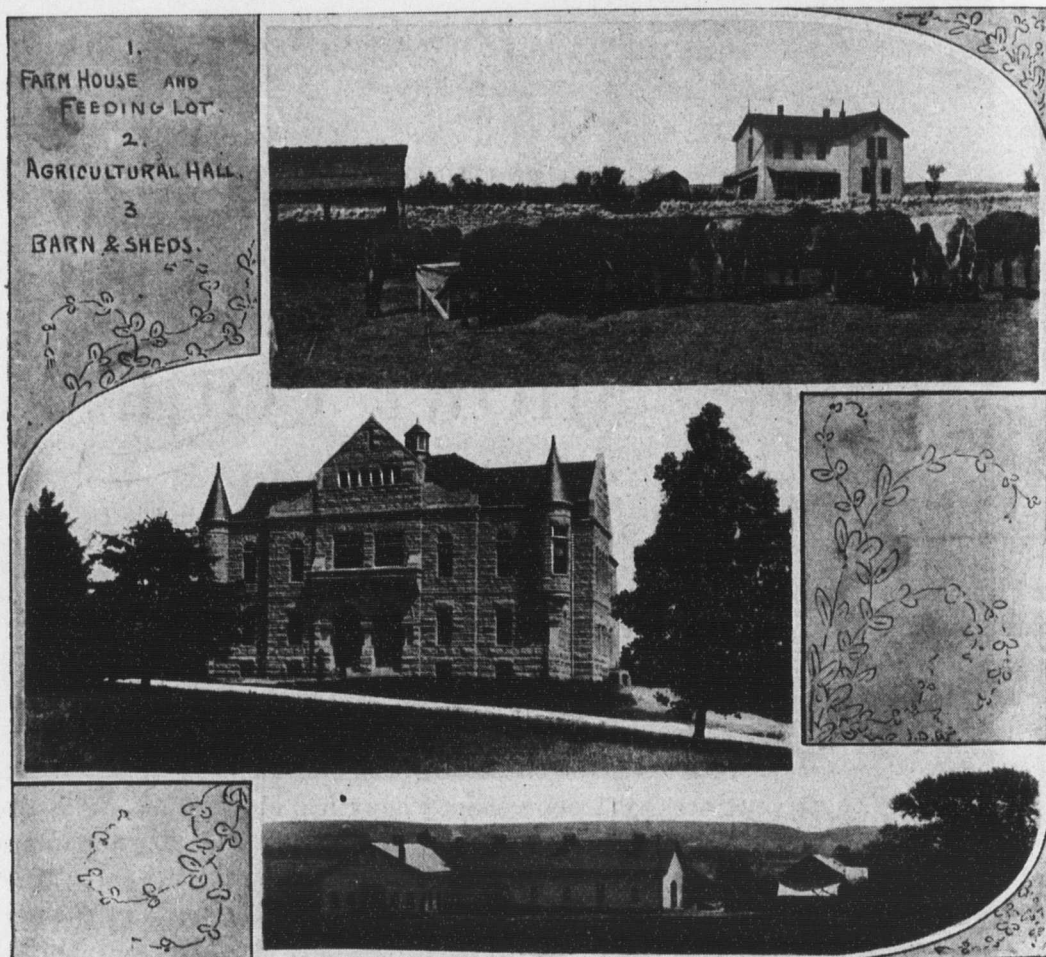
FARMERS' SHORT COURSE.

JANUARY 7 TO MARCH 28, 1902.

The Short Course is designed for those farmers and farmers' boys who cannot spare the time or the money to take our regular four-year course. The time required for the FARMERS' SHORT COURSE is two winters, twelve weeks each, coming at a time of year when men on farms can best leave their work. Instruction is given in crop production, feeding and breeding, orcharding, gardening, and farm shop work. Diseases of farm animals, the study of bacteria and insects, botany, chemistry and physics are treated from a strictly practical standpoint. The aim of the course is to give instruction which will enable the student to grow larger and better crops, increase the fertility of the soil while taking paying crops from it, secure cheaper and greater gains in feeding, maintain the health of the animals on the farm, improve the quality of all the products of the farm, and market them to the best advantage.

SUCH A TRAINING PAYS.

Putting his knowledge of crop production and botany together, one of our students, by a simple method of crossing, has increased his yield of corn ten bushels per acre. Wheat experiments conducted at this College for eighteen years show that proper preparation before seeding increases the yield forty per cent. Steers fed the ordinary ration fatten in from five to seven months; on a balanced ration they are ready for market in from 80 to 100 days, and a feeder who knows how can produce a balanced ration as cheaply as the ordinary one. The College purchased half of a farmer's herd of hogs, taking a fair average of the lot. We fattened these hogs in fifty days, while the farmer, doing the best he could, marketed his in 110 days. We spent less for feed and had risk from disease for less than half the time. By feeding alfalfa hay with grain to fattening hogs the College secured 868 pounds of pork per ton of hay fed. It pays to know what type of animal gives best results for feed consumed. In 1898 a scrub cow of the dairy type gave the College milk worth \$40.37 above cost of the feed, while another scrub not of the dairy type yielded milk during the year worth \$6.25 less than her feed. Steers of the beef type required one-half the feed consumed by steers not having a beef form to make a pound of gain. Come and study animal form as an index to feeding qualities. On many farms in a single year the cost of taking this course could be saved by the knowledge gained in our carpenter and blacksmith shops. Inoculation is an almost sure preventive of blackleg. Students taking the Farmers' Short Course perform the work of inoculation in the College feed lots.



STOCK JUDGING.

The special feature of the short-course work this year will be stock judging. The College owns good representatives of ten breeds of cattle—Aberdeen-Angus, Galloway, Hereford, and Short-horn, representing the beef breeds; Ayrshire, Guernsey, Jersey, and Holstein-Friesian, representing the dairy breeds; and the Polled Durham and Red Polled, representing the dual-purpose breeds.

Twenty-five Kansas breeders have donated pure-bred pigs to the College, each breeder sending what he considered a model animal, and it will be a rare opportunity to study the ideals of these successful men. Four breeds are represented.

A number of breeds of poultry are represented on the College farm, and Manhattan fanciers will loan the College all the birds needed for thorough work in scoring.

The College has secured the loan of some of the best horses in the state for use in the work of judging horses.

The instructors and dates are as follows:

Poultry, February 17-22, C. H. RHODES, Topeka.

Beef Cattle, February 24-March 1, JOHN GOSLING, Kansas City.

Dairy Cattle, March 3-8, T. A. BORMAN, Topeka.

Swine, March 10-15, GEO. W. BERRY, Berryton.

Horses, March 17-22, J. W. ROBISON, El Dorado.

The special instructors in this judging work are among the most successful in their lines of work in the state as a brief statement of their work will show:

C. H. RHODES will act as judge this season at leading poultry exhibitions in Kansas, Colorado, Missouri, Nebraska, and Oklahoma, and for the fourth time

as judge for the Kansas State Poultry Association. He has successfully bred nine varieties of chickens.

JOHN GOSLING has been a judge of beef cattle at state and other large fairs in Ohio, Indiana, Illinois, Missouri, Minnesota, Iowa, Nebraska, and Texas, and at Chicago and Kansas City fat-stock shows. The *Breeder's Gazette* says that he is a judge among judges, and that few men can set forth their views with such force and clearness.

T. A. BORMAN started in Dickinson county with a common herd, and, through his knowledge of what a dairy cow should be, bred his herd up until he secured an average of eighty-one dollars per cow a year selling milk to a creamery. He is editor of the *Dairy Age*, and assistant manager of a creamery that makes two million dollars' worth of butter a year.

GEO. W. BERRY is a breeder of both Berkshire and Poland-China hogs. He originated the prize-winning Silver Tip strain of Berkshires; has exhibited at leading fairs, and sold hogs in twelve states and territories and in seventy-five counties in Kansas. He has acted as judge at state fairs in Kansas, Texas, and Oklahoma, and at Kansas City, St. Joseph, Atchison, Dallas, and other large shows, and conducted score-card practice for the Kansas Swine Breeders' Association.

J. W. ROBISON has the largest herd of Percheron horses in the state, and also breeds standard trotting-horses. He recently spent the summer in the great horse-breeding sections of France and made a choice importation of Percherons. Besides his extensive horse interests, Mr. Robison owns and manages farms aggregating 16,000 acres. His corn-fields cover 1200 acres, his alfalfa fields 1000 acres, and other crops in proportion. He has twelve large orchards, 1500 cattle, and hundreds of hogs.

THE SHORT COURSE this year offers the student a close acquaintance with the College force of teachers and with some of the most successful Kansas breeders.

ADMISSION.

Persons at least eighteen years of age and of good moral character are admitted to these courses as follows:

Persons between the ages of eighteen and twenty-one will be admitted upon presentation of common-school diploma, grammar-school certificate, teacher's certificate, or high-school diploma, or upon passing an examination in the following subjects: Reading, writing, spelling, arithmetic, grammar, geography, physiology, and United States history. Persons over twenty-one will be admitted without examination, but should have sufficient education to enable them to understand the simple text-books used and to handle readily problems in common and decimal fractions and percentage. They will be required to attend strictly and constantly to their duties, or leave. They have the same free use of the College library that other students have. Owing to the peculiar nature of the work and to the slight degree of preparation which it assumes, *students are required to be present at the very beginning of the course, and those applying later will not be admitted.*

The short courses are in no sense equivalent to the long courses, and no one should take a short course who can take a whole or even a part of one of the long courses. All of the common-school branches are taught each term; all of the first-year subjects, except elementary botany, which is not taught during the winter term, and nearly all of the second-year studies, are taught each term; so that it is possible for one to get nearly all subjects of the first two years by attending during the winter terms only.

EXPENSES.

Tuition is free; board and rooms can be secured for \$2.50 and upward per week; lunches may be had at the College dining-room at cost; laundry costs about fifty cents per week. Incidental expenses may be high or low, as the individual determines. The total of all expenses for the entire time, exclusive of railroad fare in coming and returning, need not exceed forty dollars. Students in the short course cannot expect to earn any part of their expenses while at the College, as every hour will be needed for class work, practice work, or study. Any bright, earnest young man can save during the summer sufficient money to take a winter's term here.

COURSES OF STUDY.

First Year (Winter Term, Twelve Weeks).

| | |
|---|----------------|
| Feeds and Feeding..... | 5 hrs. per wk. |
| Horticulture, Entomology..... | 5 " " |
| Crop Production, Bookkeeping..... | 5 " " |
| Diseases of Farm Animals, Bacteriology..... | 5 " " |
| Breeds and Breeding..... | 5 " " |
| Blacksmithing, Repairing..... | 10 " " |
| Science Lectures..... | 1 " " |

Second Year (Winter Term, Twelve Weeks).

In the second year the course divides, and the student can take either the course in agriculture or the course in horticulture, as he desires.

| AGRICULTURE. | | HORTICULTURE. | |
|----------------------------------|--------------|--|--------------|
| | Hrs. per wk. | | Hrs. per wk. |
| Orchard Treatment, Pomology..... | 5 | Vegetable-gardening and Small-fruit Culture..... | 5 |
| Dairying, Farm Architecture..... | 5 | Orchard Treatment, Pomology..... | 5 |
| Botany..... | 5 | Diseases and Insects..... | 5 |
| Physics and Chemistry..... | 5 | Physics and Chemistry..... | 5 |
| Shops, Farm Carpentry, etc..... | 10 | Shop, Farm Carpentry, etc..... | 10 |
| Farm Practice..... | 5 | Horticultural Practice..... | 5 |
| Science Lectures..... | 1 | Science Lectures..... | 1 |

OUTLINE OF STUDIES.

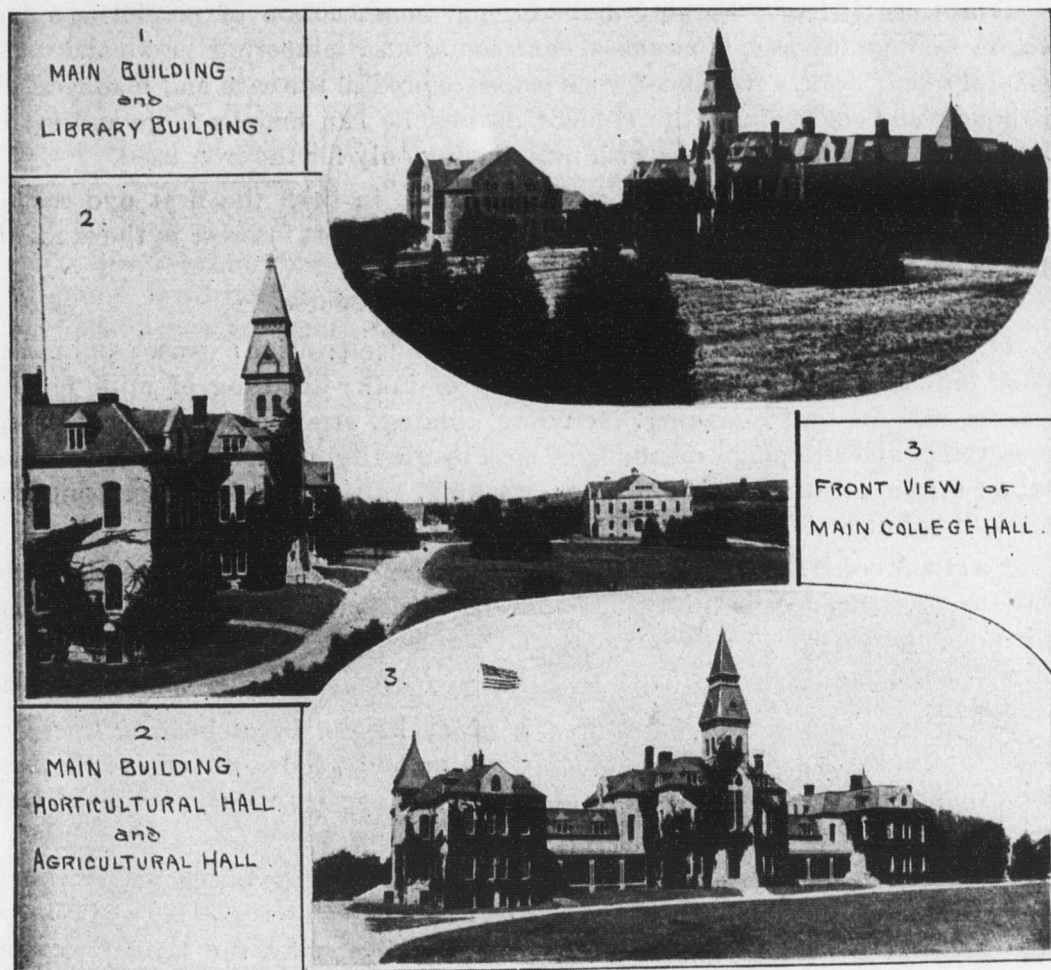
FIRST YEAR.

Feeds and Feeding. The properties of feed stuffs, and their combination to secure good returns at least cost with products having the desired qualities; effect of foods on quality of products; construction of farm buildings and appliances to secure best returns from feed and for saving labor; a study of the feeding on the College farm. Text-book, Henry's "Feeds and Feeding." Lectures.

Horticulture. General principles underlying plant growth; structure and functions of the various parts of the plants; nutrition, formation of seed, etc.; propagation by seedage, cuttage, graftage, and layerage; environment, including the effects of temperature, light, food and water-supply; possibilities of improvement by cultivation, training, and selection. Text-book, Goff's "Principles of Plant Culture."

Breeds and Breeding. Characteristics of the breeds of live stock and their adaptability to Kansas conditions; principles of breeding; form as an index of qualities; selection and judging of horses, beef and dairy cattle, swine, and poultry.

Entomology. Nature, time and extent of the injuries from insect life, and a knowledge of the remedies, when and how to apply them. Structure of a



number of insect types; study of the beneficial insects, and the more injurious forms attacking farm, orchard and garden crops. Use of preventives and insecticides.

Crop Production. A study of the soil, the plant, and crop growing, including the management of the soil for maintaining and increasing its productivity, the improvement of worn-out soils, conservation of moisture and the preparation of the soil, selection of the seed, method of planting, treatment after planting and harvesting of Kansas field crops to secure best returns at least cost. Text-book, Bailey's "Principles of Agriculture." Lectures.

Bookkeeping. The principles are mastered through their practical application to forms adapted to farm affairs. Each student keeps a regular set of books, in which accuracy and neatness are not less important than a correct understanding of principles. A set of books is developed which would be practical for every farmer, accounts being kept with various departments of his business—fields, granaries, garner, orchards, hogs, cattle, milch cows, etc.

Diseases of Farm Animals. The common ailments of farm animals are discussed, their causes and symptoms explained, and preventives and remedies suggested. Inoculation against blackleg will be performed by the student in this course.

Bacteriology. Characteristics of bacteria; their relation to health and disease of man and animals, to soil fertility, and to quality of dairy products; principles and methods of disinfection.

Blacksmithing. Forging and welding, construction of singletree clips, wagon ironing, clevises, horseshoes, sharpening and tempering plows and tools, general repair work. Advanced work is also offered in the care and management of boilers and engines. If the student desires, he can make a forge and set of blacksmith tools to take home with him, paying only for the iron used.

Science Lectures. Lectures will be given in both the first and second years of the course by the instructors on subjects of most interest to the students in this course.

SECOND YEAR—Agriculture Course.

Dairying. Milk: its secretion, nature, and composition; causes and conditions influencing the quality and quantity of milk; handling of milk for the market and for butter-making, including milking, straining, aerating, cooling, preserving, and shipping; creaming of milk by gravity methods and by the separator; cream ripening and churning; washing, salting, working, packing and marketing butter. Text-book, Wing's "Milk and its Products."

Farm Architecture. Each student will be required to prepare plans, elevations, sections, detailed drawings and specifications of a sanitary farm barn, with outbuildings.

Orchard Treatment and Pomology. Same as in horticulture course.

Botany. The laws of plant growth which have a direct bearing upon the raising of grasses, grains, clovers, forage-plants, and weeds; a study of the common fungi that affect cultivated plants; seed testing; practical methods of farm seed breeding.

Physics. A consideration of the principles of physics which underlie farm operations, farm mechanics, control of soil moisture, physical laws of tillage, meteorology. A knowledge of the law of physics enables the farmer to store moisture and to reduce loss of water from the soil by evaporation. It is the practical application of these laws that will solve our drought problem.

Chemistry. The relation of soils to earth, air, and water, formation and characteristics of different kinds of soils, soil enrichment and improvement, the chemistry of feeds and of animal products.

Farm Carpentry. Elementary woodwork in joinery and construction, followed by general woodwork and carpentry, care and use of farm machinery, the building of frame structures, such as stables, piggeries, poultry-houses, ice-houses, and farm creameries, will be given both by lectures and by practical work.

SECOND YEAR—Horticulture Course.

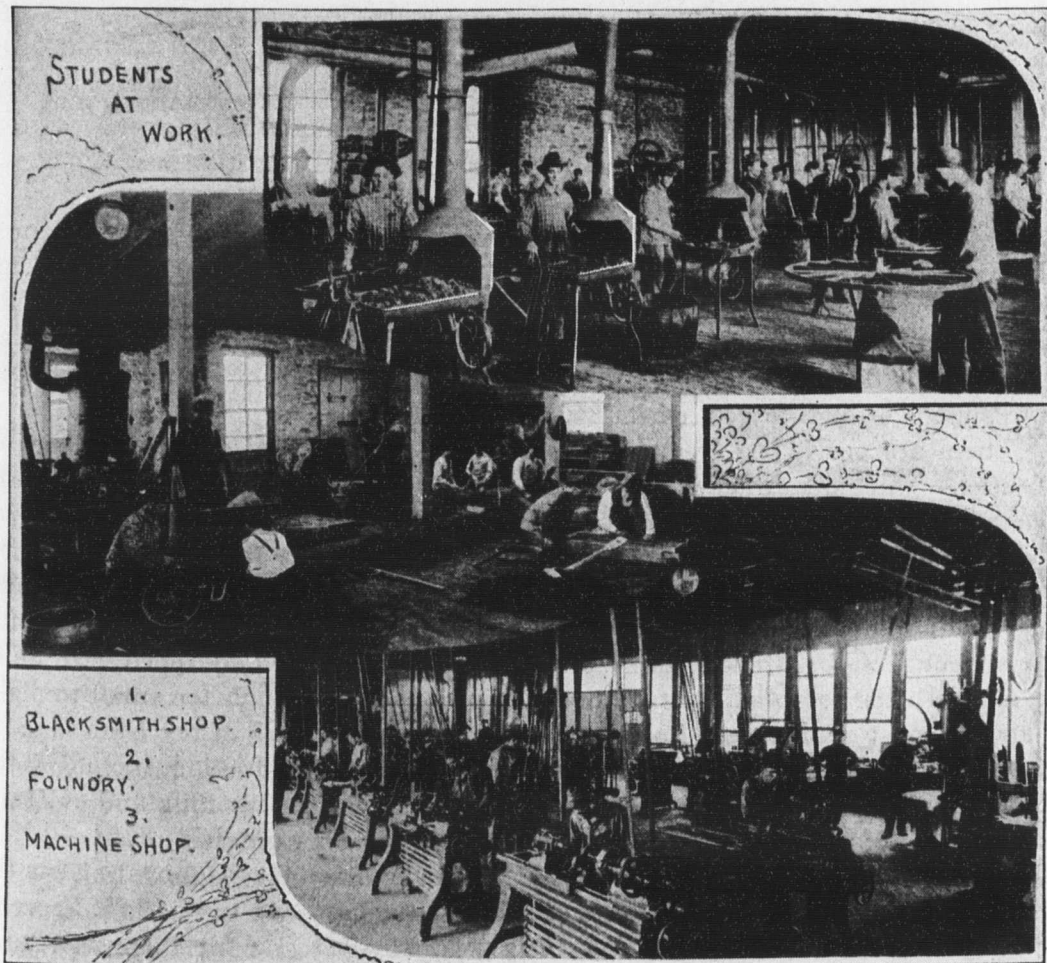
Vegetable-gardening and Small-fruit Culture. The first half of the term is devoted to vegetable growing, consideration being given to the raising of vegetables for home and market; locations, soils, fertilizers, tools, irrigation, etc., best suited for crops grown in kitchen- and market-gardens; the growing of extra-early or late crops, their special treatment, cultivation, and harvesting; the means employed in the preservation of vegetables for future use; vegetables suited to Kansas conditions, methods of improvement, etc. Small-fruit culture occupies the second half of the term. The subject is treated in much the same manner as vegetable-gardening, taking up the cultivation of small fruits and the methods employed in their propagation, handling, and improvement. Five hours per week. Lectures.

Orchard Treatment and Pomology. This branch is devoted to the practical treatment of orchard work; location, soil, planting, pruning, cultivation and fertility of the orchard; a study of the use and value of windbreaks —

how best made, trees suitable for same in Kansas; causes of plant variation and methods employed in the improvement of orchard fruits; grape growing in the West, a study of the distinctive characteristics of varieties, their value for home and market use; lists of varieties of fruits suitable for Kansas orchards; a general treatment of planning the grounds, location of houses, barns, gardens, orchards, lawns, fields, etc. Five hours per week. Text-book, Bailey's "Principles of Fruit-growing." Lectures, with library references.

Orchard Diseases and Insects. The work of this branch is the investigation of various orchard pests. Life-history and depredations of insects and fungous diseases attacking horticultural crops, together with means of combating them, preventives, and remedies; mechanical devices, spraying compounds and machinery, and methods employed in the warfare.

Chemistry and Physics. In classes with the agriculture course.



EXPENSES.

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| Botany..... | 5 | Diseases and Insects..... | 5 |
| Physics and Chemistry..... | 5 | Physics and Chemistry..... | 5 |
| Shops, Farm Carpentry, etc..... | 10 | Shop, Farm Carpentry, etc..... | 10 |
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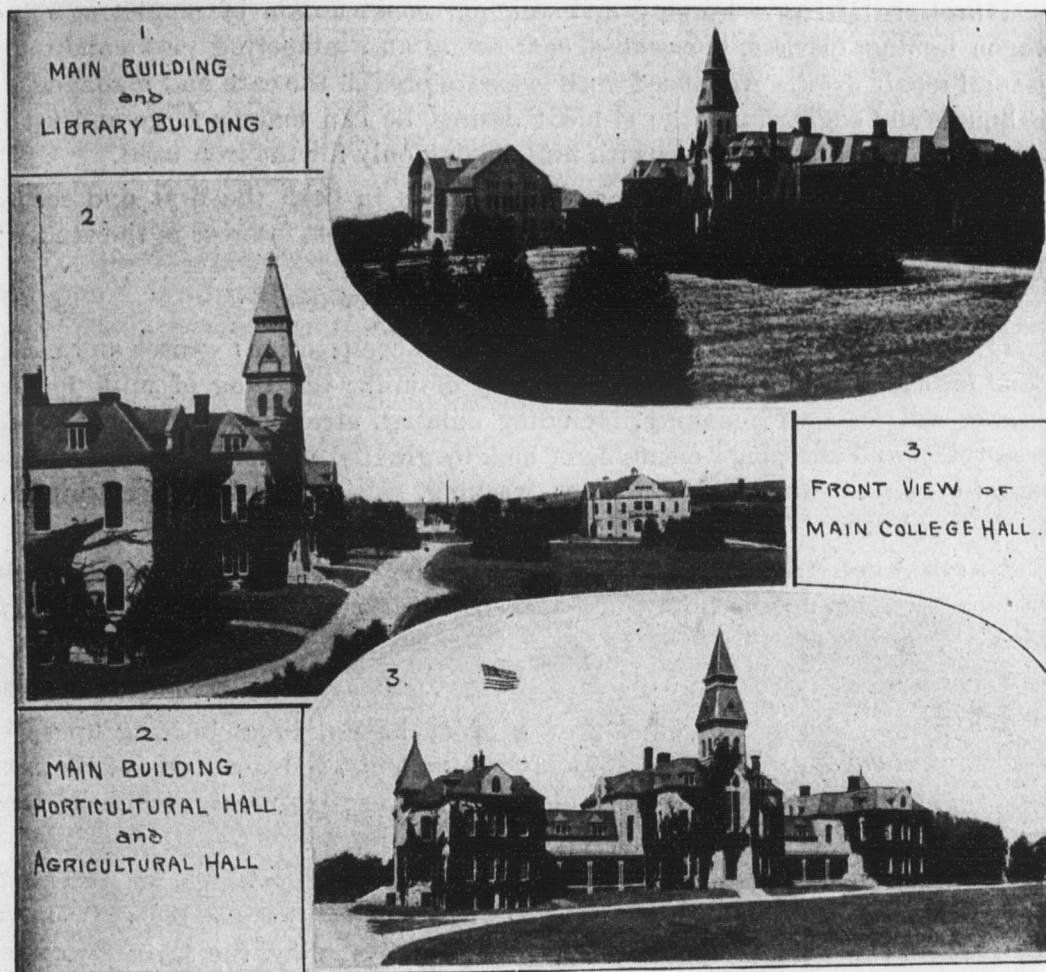
FIRST YEAR.

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number of insect types; study of the beneficial insects, and the more injurious forms attacking farm, orchard and garden crops. Use of preventives and insecticides. *

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how best made, trees suitable for same in Kansas; causes of plant variation and methods employed in the improvement of orchard fruits; grape growing in the West, a study of the distinctive characteristics of varieties, their value for home and market use; lists of varieties of fruits suitable for Kansas orchards; a general treatment of planning the grounds, location of houses, barns, gardens, orchards, lawns, fields, etc. Five hours per week. Text-book, Bailey's "Principles of Fruit-growing." Lectures, with library references.

Orchard Diseases and Insects. The work of this branch is the investigation of various orchard pests. Life-history and depredations of insects and fungous diseases attacking horticultural crops, together with means of combating them, preventives, and remedies; mechanical devices, spraying compounds and machinery, and methods employed in the warfare.

Chemistry and Physics. In classes with the agriculture course.



THE DAIRY SCHOOL.

January 7 to March 28, 1902.

We have expended \$25,000 for an agricultural building, \$10,000 for dairy apparatus, and \$5000 for a dairy herd and shelter, giving Kansas one of the best equipped dairy schools in the United States. The school will be held January 7 to March 28, 1902, and thorough instruction will be given in milk production, creamery butter-making, factory cheese-making, and private dairying.

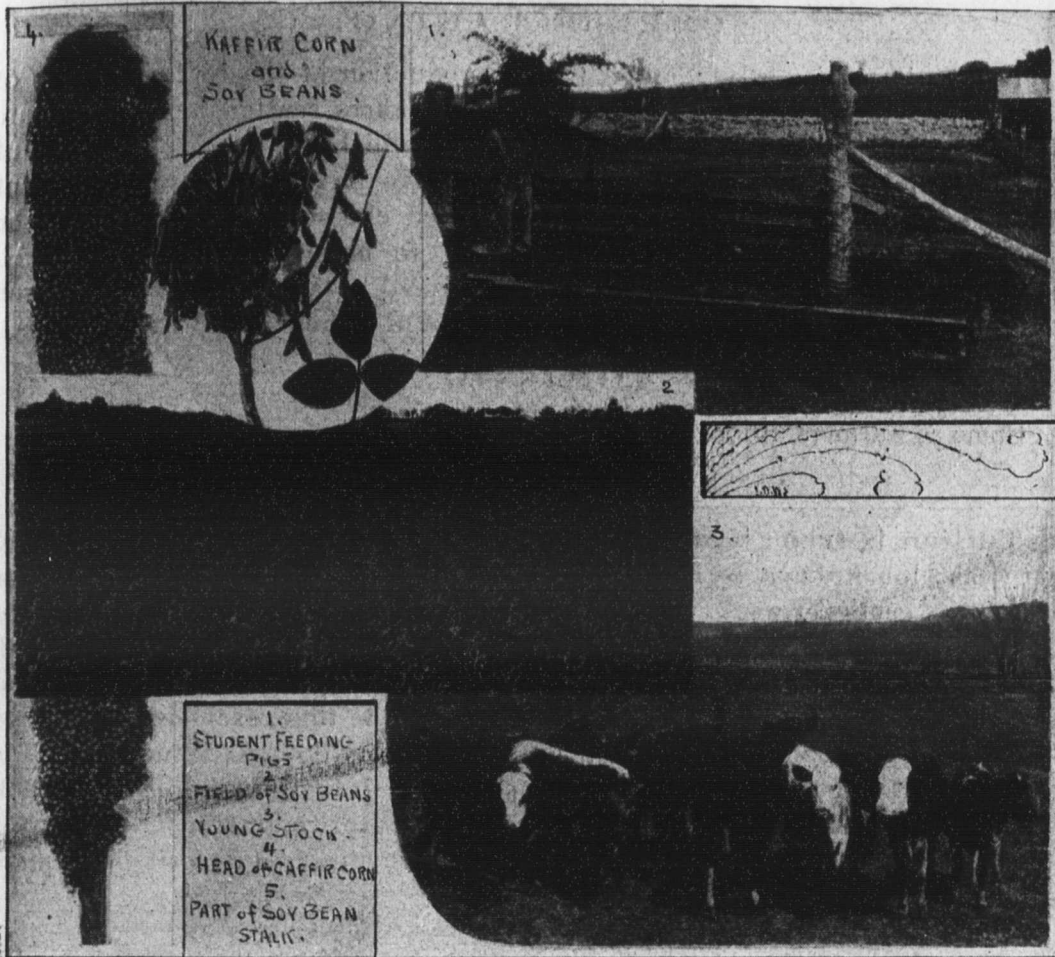
Kansas offers ideal conditions for profitable dairying—mild climate, short winters, fertile soils, cheap feeds, and good markets. The mild winters necessitate cheap shelter only. Kansas butter can be delivered in good condition to our best Eastern markets for one and one-fourth cents per pound—a lower rate than that paid by many Eastern farmers situated within 100 miles of these markets. Kansas butter can be delivered to Rocky mountain markets for two cents per pound and to English markets for less than two cents per pound. A good market is opening in China and Japan.

Dairying offers to Kansas farmers the advantages of monthly cash returns the year round, profitable employment for the entire year, and a good home market for the farmers' crops on the farm where they are produced. Butter brings more per pound than any other farm product, and Kansas farmers, many of whom live distant from the railroads, can condense tons of cheap, rough feed into pounds of high-priced, easily marketed butter.

There are nearly 500 creameries, skimming stations and cheese factories in Kansas. The more milk each of these plants receives the less will be the cost of operation per 1000 pounds of milk received, and the higher can be the price per pound paid for butter-fat. To be most profitable to the farmers of the state, these plants must receive ten times their present supply of milk. The greater the production of milk and butter-fat in the state the greater will be the profits to all connected with the dairy interests. Kansas is well equipped with dairy manufacturing establishments, but the milk supply is much too small to make dairying most profitable. For these reasons the chief work of the Kansas dairy school will be to give instruction to farmers in milk production, including the selection of the cow, handling and feeding her, the care of her milk and calf, and the feeding of skim-milk, buttermilk and whey to secure greatest profit.

Kansas cows have been bred chiefly for beef. Secretary Coburn reports the average yearly value of the product of the Kansas dairy cow to be \$9.65. Several creameries report that the average receipts per cow per year for their patrons is \$20. This College secured, in 1898, an average per cow of \$37.75 for butter-fat, at creamery prices, from a scrub herd that in quality were much below the average cows of the state; and one scrub cow, for which we paid \$30, returned \$60.88 for butter fat, and gave a net profit above cost of feed of \$40.37.

These records show that, with the cows they now own, Kansas dairymen can, with proper feed and care, double and treble the present milk yield and make an even greater increase in their net profits. We want farmers and farmers' boys from every township in Kansas to attend our dairy school and learn to feed and handle cows so as to secure these results. Kansas dairymen buy thousands of



tons of mill feed. Those who know how secure the highest milk yields with feeds grown on the farm. Come and learn how.

After the Kansas dairyman has learned to feed and handle the cows he now owns, he can still further increase his profits by selection and breeding. T. A. Borman, Navarre, Kan., after six years of selection and breeding, selling his milk to a creamery, secured an average income per cow of \$81.17. You can do as well when you know how. Come to the dairy school this winter and learn.

CREAMERY BUTTER-MAKING.

Our appropriation has enabled us to secure a model creamery equipment, and instruction will be given in creamery butter-making and creamery management. A butter-maker in Kansas must know more than how to make the best quality of butter and to successfully manage a creamery. He must be able to show his patrons how to select, feed and handle the cow and handle her products. He must be able to teach them how to raise good calves with skim-milk and how to get the most out of skim-milk and buttermilk in feeding hogs. He must show his patrons what crops to raise in order to secure good milk yields without buying grain. He must show his patrons how to make shelter for dairy stock and products that will be cheap and at the same time suitable for the work. For this reason, all students taking creamery butter-making will be required also to take the instruction we give to the farmers.

CHEESE-MAKING.

Kansas is particularly adapted to the production of the highest grades of cheese, and when we have competent cheese-makers scattered over the state Kansas will not only supply her home demand, which she fails to do now, but will sell cheese in all the world's markets. We have a complete equipment for factory cheese-making, the best constructed cheese-ripening rooms in the state, and will furnish thorough instruction in factory cheese-making. All students taking cheese-making will also be required to take the instruction given to farmers, for the reasons given under the head of "Creamery Butter-making."

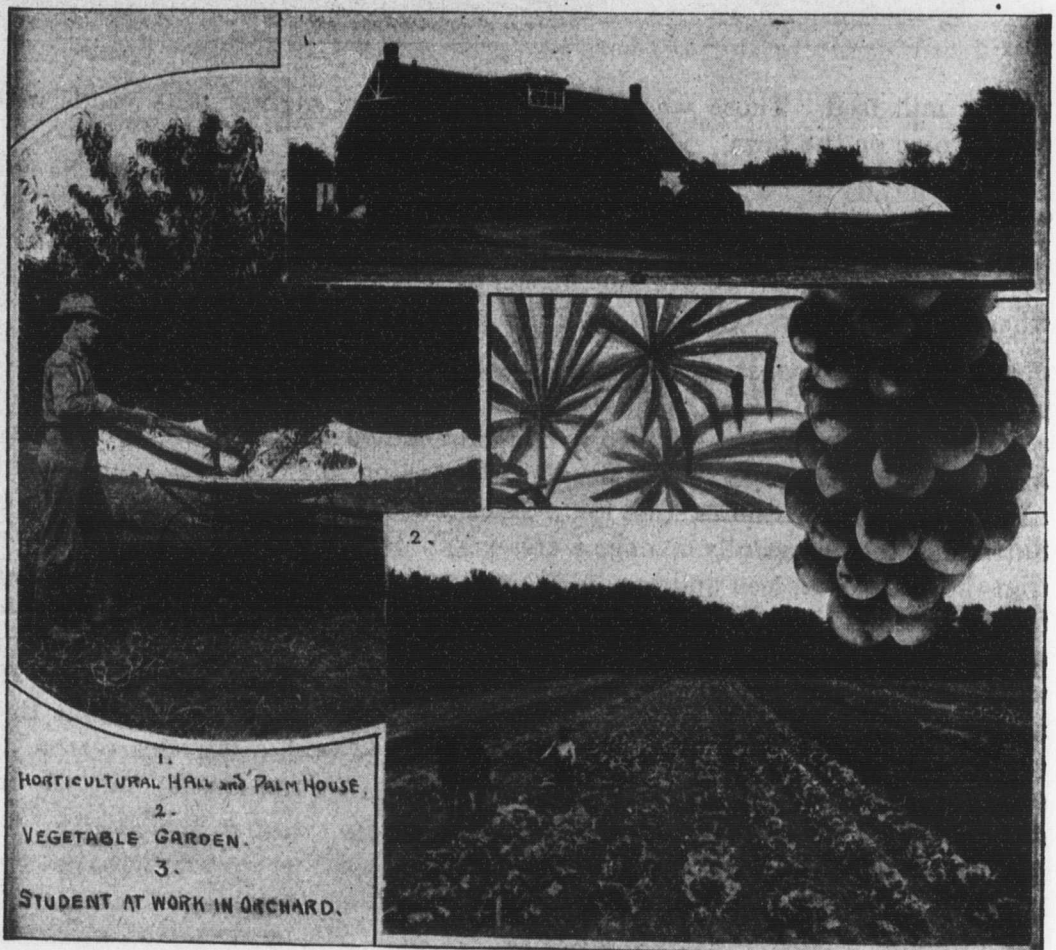
ADMISSION.

Same as Farmers' Short Course. See page —.

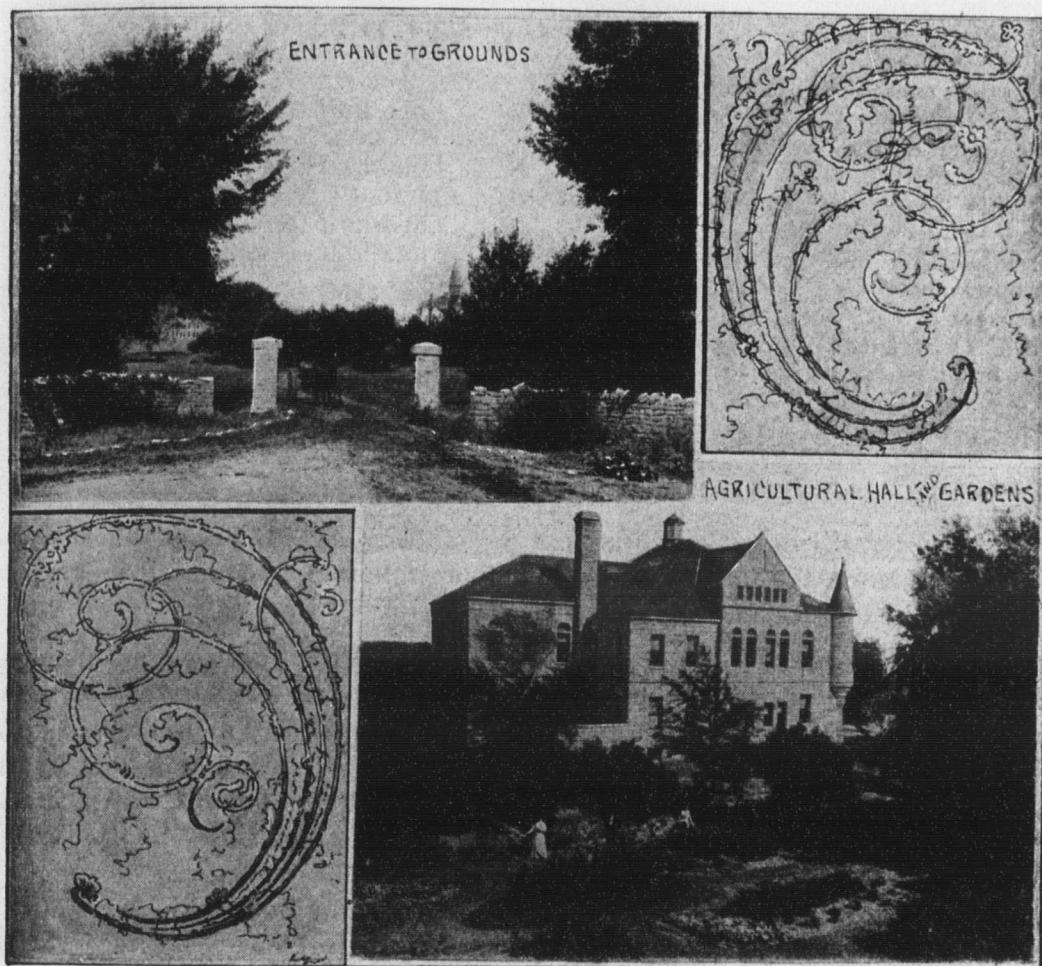
EXPENSES.

Tuition is free; board and rooms can be secured for \$2.50 and upward per week; lunches may be had at the College dining-room at cost; laundry costs about fifty cents per week. Each student will need two white suits and caps for use in the dairy room. These can be purchased in Manhattan. Breakage will be charged at cost. Incidental expenses will be high or low, as the individual determines. The total of all expenses for the entire time, exclusive of railroad fare in coming and returning, need not exceed forty dollars. Students in the dairy course cannot expect to earn any part of their expenses while at the College, as every hour will be needed for class work, practice, or study.

Each student taking dairy practice will be required to deposit five dollars



1.
HORTICULTURAL HALL AND PALM HOUSE.
2.
VEGETABLE GARDEN.
3.
STUDENT AT WORK IN ORCHARD.



(\$5) with the secretary of the College, at the time he secures his assignment, to pay for any glassware he may lose or break, and the department of dairy husbandry will keep an accurate account of such losses. The difference between the amount of the deposit and the losses by breakage will be returned to the student at the close of the term. If any student breaks over five dollars' worth of glassware before the close of the term, the department of dairy husbandry will report such student to the secretary of the College, who will require that he make an additional deposit.

EQUIPMENT.

One hundred dairy cows, ten breeds of pure-bred cattle, a scrub herd, and a grade herd; a herd of calves being raised on skim-milk and calf foods; a dairy barn for eighty cows; a model dairy-school building, two stories and basement, 100x105 feet, with butter, cheese, milk and testing rooms, cheese-ripening cellars, and cold-storage rooms; all apparatus needed for milk testing and for handling milk, from the cow, through the creamery, to the butter-tub or cheese room. Students in the dairy course have free use of the College library, containing 23,704 bound volumes and about 19,600 pamphlets, and in which are kept on file all the leading dairy and farm papers. The Students' Farmers' Club meets weekly to discuss farm questions, and furnishes a valuable part of the education offered.

COURSE OF STUDY.

| | | |
|---|-----------------|----------------|
| Dairying and Agriculture..... | | 5 hrs. per wk. |
| Dairy Bookkeeping..... | one-half term | |
| Creamery Butter-making, or..... | } one half term | 5 " " |
| Cheese-making, or..... | | |
| Private Butter-making..... | | |
| Feeds and Feeding..... | one-half term | 5 " " |
| Breeds and Breeding..... | one-half term | |
| Bacteriology..... | | 3 " " |
| Diseases of Dairy Animals..... | | 2 " " |
| Boilers and Engines..... | | 5 " " |
| For farmers—Milk Testing and Private Butter-making..... | | 20 " " |
| For creamery men—Milk Testing and Creamery Butter-making, | | 20 " " |
| For cheese-makers—Milk Testing and Factory Cheese-making, | | 20 " " |

OUTLINE OF STUDIES.

Dairy Bookkeeping. Practice in bookkeeping that will enable the student to understand the underlying principles, followed by training in keeping books for farm, dairy and creamery accounts.

Dairying and Agriculture. Milk: its secretion, nature, and composition; causes and conditions influencing the quality and quantity of the milk; handling of milk for the market and for butter-making, including milking, straining, aerating, cooling, preserving, and shipping; creaming of milk by the separator; cream ripening and butter-making. Production of dairy crops. Text-books, Wing's "Milk and its Products," Farrington's and Woll's "Testing Milk and its Products."

All students will study dairying together for the first half of the term. This class will then be divided, creamery men taking lectures on *creamery butter-making*, the cheese-makers on *factory cheese-making*, and the dairymen on *private butter-making*.

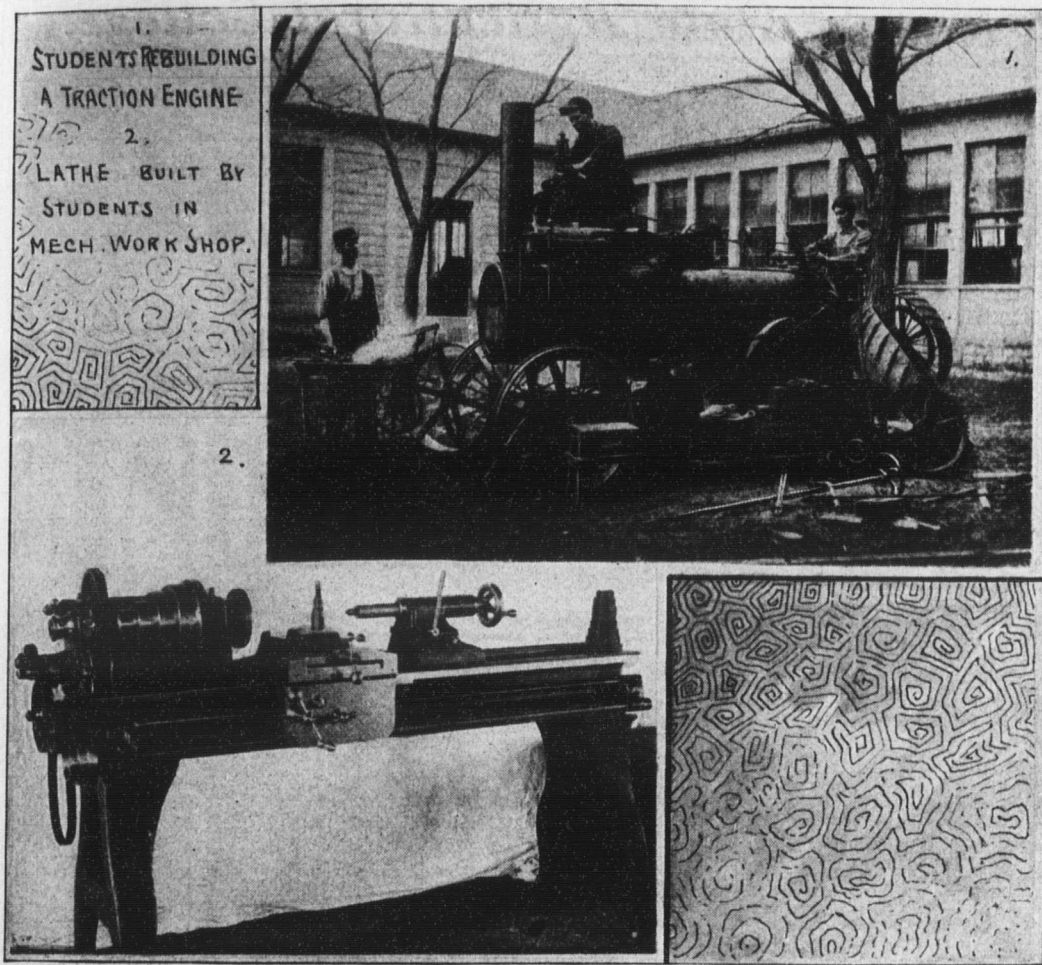
Feeds and Feeding. Properties of common feed stuffs, their effect on character and yield of milk and butter, and their adaptability to Kansas conditions of dairying; the compounding of dairy rations to secure good yields at least cost with products having desired qualities. Careful study of the feeding of the College dairy herd will also be required. Text-book, Henry's "Feeds and Feeding."

Breeds and Breeding. Characteristics of leading breeds of cattle and their adaptability to Kansas dairy farming; dairy farm, and the selection of dairy animals; care and management of the dairy herd; principles of stock-breeding; scoring and comparative judging of dairy cattle.

Bacteriology. Relations of bacteria to methods of keeping milk, ripening cream and cheese, and flavoring butter; diseases of milk, their relations to the health of man and animals; principles of disinfection. Text-book, Russell's "Bacteriology." Lectures.

Diseases of Dairy Cattle. The common ailments of calves and dairy cows are discussed and their causes and symptoms explained, remedies and preventives suggested, all from a practical farmer's standpoint. During the dairy school the College herd will be tested with tuberculin and the students taught how to make the test.

Boilers and Engines. Lectures and practice in the firing of boilers, care and running of engines, pumps, etc.; practice in shops.



Butter-making and Milk Testing. Practice in handling milk and its products from the time it leaves the cow until it is marketed as butter, cheese, or sanitary milk. Students may choose either creamery butter-making, cheese-making, or private dairying. Thorough instruction and practice will be given in all three of these lines. The dairy rooms will be fully equipped with hand and power separators, Babcock tests, churns and butter-workers, aerators, heaters, sterilizers, milk and cream vats, factory-cheese apparatus, Mann's acid tests, and other needed apparatus. Many manufacturers have volunteered to loan us machinery, so that the dairy students may make tests of the work of the different makes of separators, churns, etc.

STATE DAIRY ASSOCIATION.

The State Dairy Association will meet at the College March 4, 5, 6, and 7, during the week of judging dairy cattle. In addition to the best talent in the state, prominent dairymen outside of the state will be in attendance. Members of all previous dairy classes will have a reunion during the same week.

Reduced rates on all railroads.

This will offer the best opportunity for a week's study of dairy subjects ever presented to Kansas dairymen. Exhibits of butter, cheese and dairy machinery.

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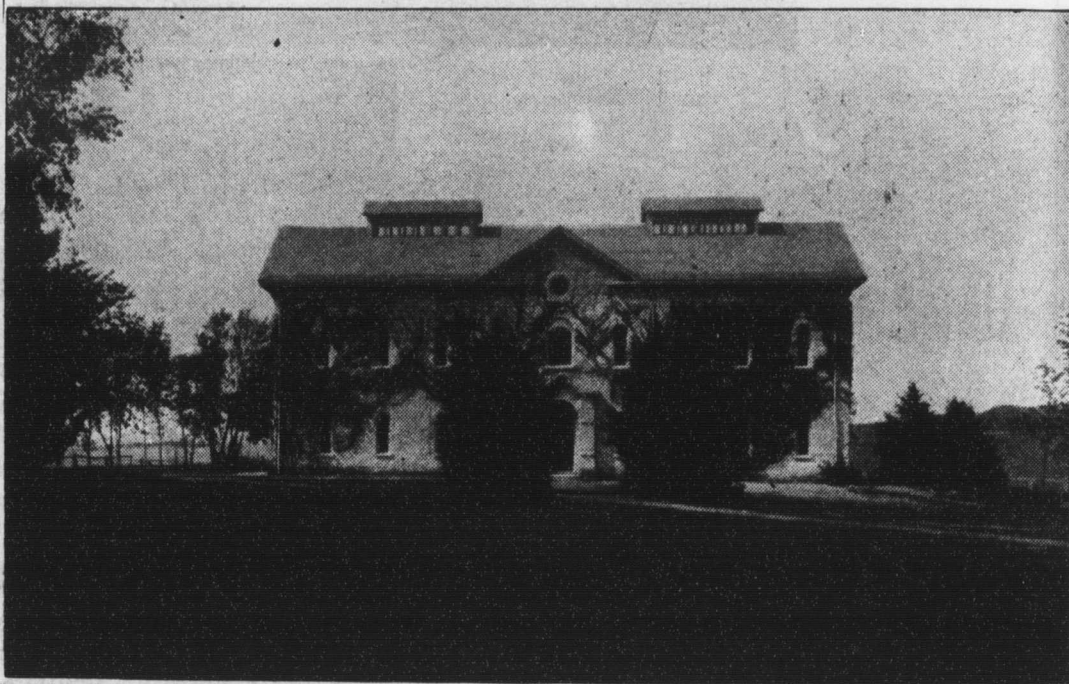
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☆ ☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
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No. 5

THE SUCCESSFUL LIFE.

IF ONE wished to succeed in agriculture he would strive to gain a knowledge of the science upon which agriculture is based. He would learn to know something of the elements that compose the soil and of the forces that govern plant life. He should be mechanic enough to manage intelligently the various machines used in agriculture: for the successful farmer no longer plods slowly and wearily from end to end of the long furrow. He rides in comfort on his sulky plow, traction engine or automobile. The unwilling child no longer toils across the wide field dropping where two furrows meet five grains of corn,

“One for the blackbird, one for the crow,
One for the cutworm and two to grow.”

If one would be a successful engineer and guide the fiery monster that takes the long train overland with the rush and roar of the whirlwind, or the majestic ship across the trackless sea, he must not only have a trained eye and hand, but a thorough knowledge of the mechanism of the engine. He must understand the nature of the force compressed in the cylinder and know how to control it.

Success in any occupation depends on thorough preparation. He who would live a successful life should have his physical, mental and moral faculties at their best, and make the best use of them. He should have a knowledge of his physical body, the house he inhabits, and know how to keep that house in order; he should understand and apply the laws that govern its well-being and make it a suitable dwelling-place for the mind.

Education is to the mind what cultivation is to the soil. It arouses and stimulates the latent forces. Ignorance and uncouthness give place to knowledge and culture. Locke says, “I think I may say of the men we meet, that nine out of ten are what they are, good or evil, useful or not, by their education.” All do not have the same gifts, but all may cultivate the gifts they have.

Education is the pathway from savage to civilized life. It teaches us to think, breathes the breath of life into the dormant faculties of our intellectual and moral natures, and they awaken. Our mind is kept on the alert and we acquire knowledge and learn how to use it. "Knowledge is power." The world wants thinkers and workers. It is the men who have cultivated their gifts, the men who know how to do things, who make the wheels go round and add to the knowledge and progress of the world. If you would accomplish results, learn the great value of trained thought. It furnishes a means towards success in life. New worlds are opened to him whose mind is cultivated. He enters the realms of science, literature, art, and rises to higher levels. By the power of thought he learns the value of things; learns to distinguish the false from the true; the trivial and perishable from that which endureth forever. He has a higher conception of life, grander thoughts, and thought is the mainspring of action. "As a man thinketh in his heart, so is he." He who would succeed in life must not only have high ideals, and the power to appreciate the true and the beautiful, but the will to climb the heights—the disciplined resolute will that keeps him in the upward path, undaunted by difficulties.

By overcoming difficulties he gains strength, grows towards moral perfection. A successful life does not mean length of days. "He most lives who thinks most, feels the noblest, acts the best." Success is not won in the lonely dwelling-place of the recluse, or in the cloistered cell of the monk, but in the world's broad field of battle, where men strive with the problems of human existence.

In the business world, the man who has amassed wealth is called successful. He may be grasping, sordid, ignoble, and if *this* life were the end of all things such a result of human endeavor might be success; but man is heir to two worlds, the material and the spiritual. When his physical nature perishes, he must part with his acquired wealth, the result of his life work, and take nothing with him but his acquired character; builded day by day, dwarfed and deformed though it be. Is *this* the successful life? Character is the great essential. He who gives his life to pleasure may shine and coruscate for a season and—go out in darkness. Only what he has wrought into his character can he take away with him.

One may be a prince, live in a palace, wear royal robes, and

have thousands obey his will, but unless he feels his responsibility to a higher power, and would obey the will of the King of Kings, in that final hour that comes to all alike, when he must lay the trappings of earthly grandeur aside and go alone through the "Valley of the Shadow," the knowledge will come to his trembling soul that his life was a failure.

"The boast of heraldry, the pomp of power,
And all that beauty, all that wealth e'er gave,
Await alike the inevitable hour;
The paths of glory lead but to the grave."

Then why should man so often lose sight of his great destiny in the pursuit of material success, forgetting alike his duty to himself and his responsibility to God?

Webster, when asked what is the greatest thought that ever entered your mind? replied: "The thought of my responsibility to God." If one would attain perfection he must not pursue the unworthy and the perishable, but put himself under the best influences. Conscience must be the Arbiter and every day must be a day of judgement. He must rule his own spirit and live in harmony with God's law. "He that ruleth his own spirit is greater than he that taketh a city." Indolent, purposeless amiability is not proof of a noble character. Such a character may give way before unusual stress or strain.

A noble character would have something to do with the world's progress, would seek to elevate the moral power of the race and make the world better, would be brave and courageous and fight valiantly against the power of evil. Such men have gone to the scaffold in obedience to the "higher law." They have a greater incentive to right living than public opinion or the applause of the multitude.

A great man is not always a popular man. A noble character takes broad views of life, and is pervaded with the spirit of love to God, to humanity—possesses the charity that "suffereth long and is kind, that vaunteth not itself, is not puffed up." A noble character is true in all the relations of life, brave yet tender, meek yet never losing sight of its high destiny, and ready to obey the summons of the beckoning angels. The world has known such. Such a one has just passed from earth, his dying lips murmuring, "Nearer, my God, to thee;" his last words, "good bye, good bye, all. It is Gods way; His will be done." Oh, brave, noble soul. Of such is the kingdom of heaven.

GERTRUDE A. BARNES.

A PLANTER'S NOTES ON TREES AND SHRUBS.

I.

THE following notes upon the behavior of trees and shrubs are drawn from an experience of nearly twenty years in the planting of ornamental woody plants, chiefly on the lawn and in the trial grounds of the Kansas State Agricultural College and Experiment Station. They are presented as suggestions to intending planters, and it is believed that the results here shown will be very nearly found good in most localities in middle and eastern Kansas.

The tulip-tree, or poplar (*Liriodendron tulipifera*), a noble native of rich lands in the central Mississippi river region, has been growing for nearly twenty years upon the College grounds, making a growth less satisfactory than if in better soil, but the trees having become fairly established are admired by all viewers. The conspicuous yellow tulip-shaped flowers in May attract much attention, as does also the peculiar foliage, whether in the fine light green of spring or in the rich yellow autumnal coloration. We note that this tree does not thrive in the infertile clay soil of the slope lands, but does better on the low grounds where it receives the wash of the hills. Small trees are less hardy, being occasionally destroyed by hard winter weather, especially when succeeding dry weather in August. We have found it possible, in spite of popular experience to the contrary, to transplant this tree with fair results, even when it is two or three inches in diameter, it being necessary, however, to saw the top off at the ground and allow a single strong shoot to reform the head. Once established, this tree is in most danger from the scorching southwest sun and wind, which often kill the bark on that side of the trunk, making a blemish practically incurable. This danger can be largely avoided by selecting for the tree a situation measurably protected, and by heading the tree low for the first few years.

Other trees of the Magnolia family, to which the tulip-tree belongs, have been planted for trial, but with none of them is there a reasonable hope for success. To the list of failures in this family pertain the cucumber tree (*Magnolia acuminata*), Soulange's magnolia (*M. Soulangeana*), and an allied species, *Cercidiphyllum japonicum*.

The papaw (*Asimina triloba*), native in lower grounds through

the eastern part of the State, has some desirable and some undesirable features as a lawn tree. It is of a decidedly tropical aspect. Its abundant broad leaves are of a beautiful soft green in summer and of the clearest pale yellow in autumn, while the form of the tree, even with little attention to training, is symmetrical and pleasing. Its tendency to sprout will not weigh greatly against it if it is planted somewhat distant from the more formal part of the grounds, against a background of larger trees. A liking for the peculiar flavor of the papaw fruit has generally to be acquired, but there are many who are fond of it, and no doubt the future will give us this fruit in greatly improved forms. Great variation occurs in the size and quality of the fruits as they grow in our timbered lands, and it seems that a little effort in selection should give us ample and early reward in the way of improvement.

The coralberry (*Cocculus carolinus*), native in our southeastern counties, is a woody twiner with broad ovate, often lobed, leaves and bright red berries. It is of only moderate density as a trellis plant and not equal to the next species, its relative, as an ornamental. It thrives best in moist ground, and is prone to spread beyond bounds by suckers, a tendency that forms a drawback to its use in neat places.

The moonseed (*Menispermum canadense*) is a woody twiner, native throughout the eastern half of the State, growing in rich soils in thickets and along fences. It is well worthy a place in even a moderate collection of climbers, making a close screen of broad, rich foliage, agreeably diversified in summer by clusters of small white flowers and in autumn by black grape-like fruit. Like its relative, the coralberry, this vine suckers from the running roots, but this habit is not sufficiently pronounced to give trouble.

Akebia quinata, a graceful slender woody twiner of Japanese origin, bearing handsome palmate leaves with five leaflets and purple flowers of medium size in small clusters, followed by very large oblong purple berry-fruits, while desirable in respect to its beauty, is with us, unfortunately, rather tender, suffering rather from our hot, dry summers than from the severity of our winters. It should be planted upon an eastern exposure and given protection during winter. It cannot be recommended, however, for general planting.

The European barberry (*Berberis vulgaris*) is a shrub that proves well adapted to general planting. Under favorable conditions it attains seven or eight feet in height, with a corresponding breadth, and with a little attention to pruning away the worn-out wood is an agreeable specimen at all seasons. Its spring foliage is a beautiful clear green, among which the yellow flower clusters, in May and June, show to good advantage. Usually the summer effect is less agreeable, the leaves becoming somewhat dull in color. In the autumn, however, the colors are exceptionally good, including shades of yellow, red, and red-brown, the foliage hanging later than that of most shrubs. An additional beauty is offered in the bright crimson, scarlet or purple fruits, which remain on the bush nearly throughout the entire winter. The close growth of the barberry adapts it well for the purposes of a garden hedge.

The variety *purpurea*, or *atropurpurea*, as the purple leaved form is called in the catalogues, is one of the best shrubs of its color, the foliage being very attractive during the first half of the growing season, though becoming somewhat dull and dusty looking during the hot weather in August. It is less hardy than the normal form.

Berberis Thunbergii, a low-spreading picturesque Japanese species, is much admired where well grown, and has proved perfectly hardy. The leaves are somewhat smaller and more sparsely placed, the small greenish flowers are scattered and inconspicuous, the bright red fruits, however, being sufficiently distinct and showy. This shrub grows naturally in a pleasing form, requiring little or no pruning, and is well adapted to planting in borders or in the near foreground of tree groups. Like the common barberry, it takes striking foliage colors in autumn, and in favorable seasons is at that time a mass of rich color.

Berberis (Mahonia) aquifolium, the Oregon grape, or hollyberry, is offered by most nurserymen, and is often planted, but in most situations it is only half hardy and rarely makes a handsome specimen. It cannot be recommended except under careful cultivation and with due protection both summer and winter. This plant has long pinnate leaves, the leaflets shining green with prickly edges, those of the new shoots, extending until almost frost, being of particularly pleasing and delicate shades.

E. A. POPENOE.

INDUSTRIAL TRAINING AT K. S. A. C.

COMPARATIVELY few students appreciate the value of their industrial training at the College. The object of these industrials is to train the hands to work with the brain—to apply and make use of an education. Of what use will an education be if it cannot be profitably employed? Suppose, if you will, a person understands music perfectly, but knows nothing regarding the manipulation of a musical instrument: of what benefit would his knowledge be to him? Of course, it is some satisfaction to be able to understand; but what one needs should be something that may be applied—something that may be made use of for the benefit of others as well as for one's own enjoyment; something he can sell to others.

The average student enters college as a mere child. Many times it is his first time away from home. If he completes the course, he remains four years. During this time he changes from childhood to manhood. A small per cent return home to hover under the parental wing; most of them go forth to fight the battles of life. The industrial training at the College does as much to fit him for this battle as any of his other duties. One must learn, before he can succeed in life's battle, that he will be expected to perform many unpleasant duties; must learn to do as he is told to do, when he is told to do it, and without hesitating or complaining. An employer rarely asks an employé if he *wishes* to perform a certain duty, but has the right to suppose the employé is there for the purpose of doing what is to be done. Seldom if ever does an employer deem it necessary to explain *why* he wants a certain thing done a certain way, and usually thinks it makes little or no difference to the one employed. All that is necessary for the employé to know is, that he has been told to do a certain duty and that he will be paid for his time while doing it.

When a person accepts employment he sells his time—it belongs to his employer—and he has not the right to fool it away. One should not think he can “shirk” his duty while the boss’ back is turned, for sooner or later “your sins will find you out.” If a position is accepted, one should always do his best, no matter what the remuneration may be or how unpleasant the task may seem. Be always faithful. You know not the hour your employer is “putting up a job” on you to see how faithful you will be in small things before trusting you to more important duties.

It may be years after you have been employed by a certain person that that same person may be referred to regarding your past, and much may depend on his answer.

If one has accepted a position which he thinks requires too much energy for the pay, he should not slight the work and lose interest, but do his best until he resigns. Something better may "turn up" and he may want a recommendation from his former employer.

It is intended that the industrial training at the College shall emphasize some of these points as well as to teach the student in the several machanic arts represented at the College. All college graduates cannot become educators. It is necessary, then, that some be fitted for the several avenues in the professional world. The college graduate must "line up" by the side of the uneducated mind and untrained hand and prove his worth, and he holds an advantage in almost every undertaking. His diploma may help him to secure a position, but it will not help him hold it; it is the application of his education that does this. Even if he should employ himself as a section-hand his true worth will soon be known, and he may be called on to "step up higher" to a more responsible, and consequently more remunerative, position. Some of the highest officials of our greatest railway systems began as section-hands—but it took years of hard, honest toil. Few people "fall" into high positions. They go up the ladder rung by rung. Look up the ladder and see how high you want to climb and then begin a steady voyage up. Do not depend on others helping you and an occasional "lift" by a friend will be all the more appreciated.

In traveling life's journey many rough roads will be encountered, but perseverance will always win; and at times when the journey seems darkest and roughest a friendly beacon-light may appear ahead.

Do not blame others because they have done better than you, for in all probability if you had expended as much energy as they you might have been higher up the ladder of fame.

J. D. RICKMAN.

The Mechanical Engineering Department has purchased a new lathe with twenty-eight-inch swing and twenty-foot bed. The order was placed with the American Tool Company, of Cincinnati.

THE STUDENTS' EXCURSION TO KANSAS CITY.

The students' excursion to Kansas City last week was a pronounced success in every way. Though a little rain Friday morning just before train time threatened to seriously mar the program, and doubtless deterred some from starting, two hundred eighty passengers, most of them students, went down and saw the sights in weather that could not have been better. Most of them left the train at the bridge and went directly to Swift & Company's packing-house. Here they were conducted through the various departments and shown the slaughtering and dressing of cattle, swine, and sheep; the trimming, smoking, testing and packing of pork; the manufacture of sausage; the giant refrigerating rooms; the rendering and packing of lard, and many other details of the great plant. The tour closed in the butterine department, where, after inspecting the working and packing of this product, the party partook of a luncheon of crackers and butterine, with veal loaf and other of the special meat products of the firm. After this the party scattered in accordance with the dictates of the individual inclinations. The immense stock-yards received their due share of attention, but the center of attraction was the American Royal Cattle Show. This exhibit was said to be the finest one of the beef breeds, Shorthorn, Hereford and Galloway, ever held. It was certainly one long to be remembered. The students were admitted to the ring on Friday, thus giving them exceptional opportunities to see the animals that were being judged. In the barn adjacent, the cattle could be seen in their stalls. Friday evening many went to the Horse Show in the great convention hall, which is said to be capable of seating thirty thousand and is itself a sight worth seeing. The exhibit of Angora goats attracted considerable attention also. Mr. Wabnitz conducted the engineering students through some of the large power-houses of the street railway company and other places of special interest to them. Miss McIntyre took a party of the young ladies through one of the large stores, and to a number of other points of interest, in addition to the stock exhibit. A large volume would be necessary to detail the doings of all, but as far as the writer has heard nothing was done by any one that will be regretted. Considering the records that students sometimes make in a town, we think this word of commendation is due. The students were there on business, and they attended to it.

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LOCAL NOTES.

Mrs. Arch McKeever, of Valley Falls, is visiting her son, Professor McKeever, this week.

Major Eastman, of the College battalion, mourns over the death of his younger brother, Ben, who died of diphtheria, at Ogden, Riley county.

The first number of the College lecture course will be a concert by the John Thomas Concert Company, who will be here on November 12.

The College machine shop has lately done some repairing for the Manhattan Milling Company and for the Manhattan Beach waterworks.

Student J. H. White has charge of the city and College delivery of the Topeka *Daily Capital*. He will deliver the paper to any part of the city for ten cents a week. Leave orders at 431 Humboldt street.

About twenty College students and a number of professors and instructors composed a wheeling party Tuesday evening to Thompson's grove. A supper by a glowing camp-fire and a spin home in the moonlight made the trip a very pleasant one.

The following College officers were members of the excursion party to Kansas City: President Nichols, Professors Cottrell, Willard, Otis, and McIntyre, Assistants Shoesmith and Marian Jones, and Foreman Wabnitz. Mrs. Cottrell, Mrs. Otis and Mrs. Wabnitz accompanied their husbands.

Last Thursday afternoon Professor Hartman, of the Physics Department, made an X-ray photograph of the hip-joint of Mr. J. Flick, a farmer from this vicinity, who injured himself about a year ago by falling into an ash-pit near the Union Pacific Depot at Manhattan. The negative plate has not been developed as yet.

Mr. H. D. Watson, of Kearney Neb., spent Monday inspecting the farm, shops, printing-office, orchards, and ornamental grounds. He was greatly pleased with the practical side of the College work. Mr. Watson is one of the large farmers of the West, having twenty-five hundred acres of alfalfa, the largest dairy barn in the world, milks four hundred fifty cows, and has a silo which this year required the products of two hundred sixty acres to fill it. He has the largest cherry orchard in the world, a peach orchard of five thousand trees and an apple orchard of eighteen thousand trees.

Word has just been received that Professor Hitchcock, formerly at the head of the Botanical Department here, has suffered a relapse from typhoid fever and is critically ill at Ames, Iowa. Mrs. Hitchcock and children left Thursday to attend him. The affection and sympathy of the entire student body is with our former professor, and we hope for his speedy recovery.—*Students' Herald*.

The College brass band, under the leadership of Instructor R. H. Brown, has this fall term thirty-two members, and is making very satisfactory progress. The band has never started a year's work with brighter prospects. The present instrumentation is as follows: Cornets—R. H. Brown, F. Pleasant, F. Pendleton, A. S. Johnson, Guy Hutchinson, G. S. Wright, V. Matthews, C. Clarke, and P. D. Gardiner. Clarionets—G. Fockele, E. E. Sprague, L. B. Bender, and F. Woodruff. Slide trombones—A. D. Brown, H. R. Martin, H. B. Shields, and Ed. Secrest. Tenors—E. W. House, Geo. Wolf, and F. H. Walters. Baritone—B. Jackson and C. Legere. Alto—H. P. Hess and A. J. Rhodes. Piccolos—J. O. Greenwault and J. T. Wilson. Basses—Ed. Amos and C. B. Swift. Drums—E. A. Baxter, C. Miller, and P. Winnie.

Some twenty professors and assistants, together with a hundred or more citizens of Manhattan, responded to an invitation of Mr. C. P. Dewey to be present at the closing festivities of his charming summer resort, on Manhattan Beach, last Thursday afternoon and evening, while an equal number of the younger teachers and a large number of students were there on Friday evening at the closing ball of the season. Mr. Dewey was in his happiest mood, gave his personal attention to every detail, and made it an occasion that will not soon be forgotten. The entertainment on Thursday consisted of a boat race and concert by the Fort Riley military band and orchestra. The music was high ordered and its rendition perfect. The building, park, and lake were brilliantly lighted by hundreds of colored electric lights, reminding the guests of scenes seen at the World's Columbian Exposition. The refreshments were dainty and highly appreciated by all.

B. O. Cowan, secretary of the American Short Horn Association, in discussing the suggestion of Prof. H. M. Cottrell to establish a class in student judging at the American Royal cattle show, as outlined in Friday's *Drovers' Telegram*, said: "I have read the interview with Professor Cottrell. He is undoubtedly right, that it would arouse interest among the students. It would give them a fine opportunity of seeing and judging the best types of the different breeds shown, far better than any opportunity they would get elsewhere. It would be an interesting and instructive sight to see students, who had been carefully instructed in judging upon good animals, scoring the entries in the ring. It is of course too late to do anything of the sort this year." Capt. E. E. Scarlett, manager of the Riverside Hereford company's herd at Ashland,

Neb., said, when questioned on the same subject: "I saw the student class judging in Chicago. They manifest much interest in the event. When the animals were lined up, fully a hundred students jumped into the ring. They were not permitted to judge the animals which had won prizes, but were given unknown quantities. Then a competent judge scored the animals and the students' results compared to his. I think it would be an excellent thing to encourage students along this line by offering prizes for the most successful judge." E. H. White, of Estherville, Ia., one of the directors of the American Galloway Association, was much interested in the suggestion of Professor Cottrell. He said: "The offering of prizes would encourage the students and would advertise the show. The friends of the students would be interested in watching the results of their scorings."

A PRACTICAL POULTRY SCHOOL.—In an article under the above heading the *Poultry Gazette*, published at Topeka, speaks of the Agricultural College in the following approving way: "The editor recently spent a couple of days visiting the State Agricultural College, at Manhattan, Kan., in order that we might the more fully understand the plans outlined for the special course of poultry instruction to be held in February. We found that Prof. H. M. Cottrell, who is the agriculturist of the College, has the work in charge and that he is thoroughly wide awake on the subject. He is expecting to accomplish great things by this course of poultry instruction. The College already has fifty Barred Rocks and as many Brown Leghorns, and practical experimental work is being done. A large room capable of seating three hundred students has been fitted up for the use of the short-course students, and if this room is not filled during the week of the poultry school there will be some disappointed people around the College. The knowledge gained at this school will be invaluable to hundreds of poultrymen who are now running poultry plants of their own, or who expect soon to be doing so. There are also a great many proprietors of large farms who are to-day looking for bright young men capable of managing a poultry department, but few such men are to be found. What the dairy schools have done to supply large farms with dairy managers who are now getting large salaries, the poultry department of the College ought to do for those desiring to work with poultry. The poultry business to-day is a reality. Capable men are wanted to operate plants that will supply the ever-increasing demand for high-grade poultry. Many a person who has been toiling along with his fowls has wished for just such a course of instruction as this in the raising and scientific judging of standard varieties of fowls. The opportunity has at last presented itself. There is practically no expense attached to the course except board and lodging, which can be secured at very reasonable rates in Manhattan. The course will be open to both men and women of all ages. This course is something the West has long needed, and we trust it will be liberally patronized. Judge C. H. Rhodes, of North Topeka, will be the instructor in charge. His ability in this work is well known."

ALUMNI AND FORMER STUDENTS.

H. F. Butterfield, '01, has gone to the Manual Training School, of Ackley, Ia., to fill the position held by H. T. York, '01, until he recovers his health.

The program for the year's work of the Young Women's Christian Association, of Seattle, Wash., includes a course of lessons in domestic science which will be given by Sarah Moore Foster, '94, Nellie Little Dobbs, '90, and Mary Waugh-Smith, '99. This forcibly illustrates the ever widening circle of the College influence.

Mrs. Howard M. Jones left Monday for Madison, Wis., where she will address the Wisconsin Federation of Women's Clubs.—*Berea Citizen*. We must learn to recognize in such items as the above, evidence of the continued public activity of one who graduated in 1876 as Nellie Sawyer and is known throughout the land as Mrs. Kedzie.

Regent F. D. Coburn has purchased for the Agriculture College four pure bred Jerseys from H. C. Taylor, of Orfordville, Wis. These Jerseys are full of the combination blood, the blood which produced Brown Bessie, Merry Maiden, and Ida Marigold, the three cows that triumphed over all competitors of all dairy breeds at the Columbian World's Fair. The bull is a grandson of Diploma, the great bull that sired fifty-five cows that made high records, and he also comes from the same strain as Eurotas, who gave seven hundred seventy-eight pounds of butter in a year. The mother of the College bull gave sixteen pounds of butter in a week, while an average scrub cow gives seventy pounds of butter in a year. The three heifers are rich in combination blood and in other leading butter strains, one heifer tracing to Major Appel Pogis, who won more prizes in the show ring than any other bull; another heifer is a granddaughter of a cow giving twenty-three pounds of butter a week.

The Kansas State Agricultural College has recently received donations of some very choice pure-bred boars to head the College herd of hogs. Dietrich & Spaulding, of Richmond, donated a Poland-China boar that combines the blood of four of the greatest prize winning families of the breed. Among his ancestors are Missouri's Black Chief that sold for \$1,000 and Chief Perfection 2d, for whom \$1,000 was paid for a half interest. C. S. Kelley, of Paxico, donated a Poland-China boar which is descended from the great sires Chief Tecumseh 2d and Look Me Over, the latter a boar that sold for \$3,600, and whose son sold for \$5,100. Charles E. Sutton, of Russell, donated the Berkshire boar, King Blossom 2d, a grandson of the famous prize winner, Golden King, and related to the undefeated Victor 3d. His dam is an unusually good specimen of the famous Snowflake family. James M. Williams, of Frankfort, donated a Duroc-Jersey boar that traces on both sides to great prize winners, and comes from a very prolific strain, he being one of a litter of twelve.

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Number 6.

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Historical Society

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AGRICULTURAL COLLEGE

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No. 6

THE PEANUT, ITS CULTIVATION AND VALUE.

THE peanut is a plant which the vegetarian and the reformer who hopes to improve the world's morals by improving the world's bill of fare may well advocate and cultivate. The vegetarian has made something of a start, and peanut butter is advertised in competition with the creamery and packing-house products. The reformer may be certain that the world has grown better in its methods of peanut consumption, even though there is little proof that the nuts themselves are deserving of credit. The sellers of salted peanuts, in removing the shells from the nuts and the landscape, have done something for the cause of cleanliness. Placing the peanut upon the table has added to its dignity and multiplied the number of consumers.

Though the desirability of making the peanut appear regularly as an article not too rare nor good for human creatures' daily food may be a matter for further research, there is no doubt but that the report of the chemist is in its favor.

In a bulletin upon "Peanuts: Culture and Uses," the United States department of agriculture gives as the average of all available analyses of peanut kernals these figures: Water, 7.85 per cent; ash, 2.77 per cent; protein, 29.47 per cent; fiber, 4.29 per cent; nitrogen free extract, 14.27 per cent; fat, 49.20 per cent; nitrogen 4.67 per cent; which showing indicates that the peanut consumer gets a large amount of food for his money. The same publication gives a comparison of peanut meal and other articles of food. This table, made by Professor König, of Germany, contains these figures in terms of nutritive units per pound. Potatoes, 138.2; bacon, 1257.7; butter, 1186.5; beef, 530.9; rice, 534.6; whole milk, 145.5; peanut meal, 1425. These figures are for peanut meal, the residue after the oil has been extracted, which is said to be wholesome and palatable and the cheapest food in the list. This bulletin gives the amount of peanuts consumed in the United States as four million bushels, or about equal to the pro-

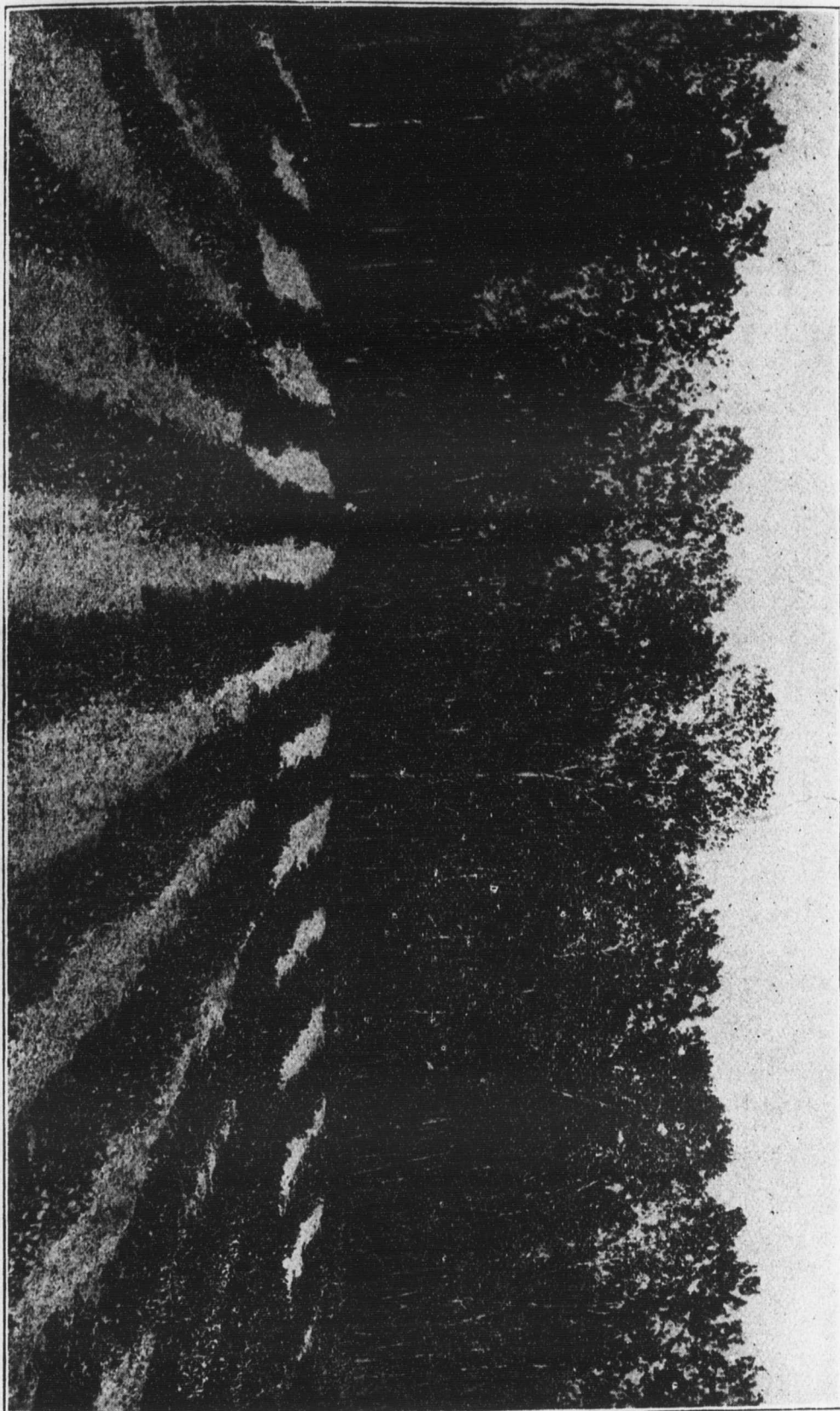
duct of this country; a small amount compared with that consumed by Europe, where large quantities are used in the manufacture of oil. This oil is used for lubricating, soap making and table use, generally under the name olive oil.

The peanut is known to the botanist as *Arachis hypogea*, of the order *Leguminosae*. Its growth and appearance are much like those of other members of the bean family until after blossoming, when the ovary is pushed into the soil by the lengthening spike or stem. The plant has a long blossoming season, the flowers are borne in the axils of the leaves, new flowers forming as the stems elongate. In the cut of the vine of Virginia peanuts may be seen pods in different stages of development, from mature nuts to those but partially formed.

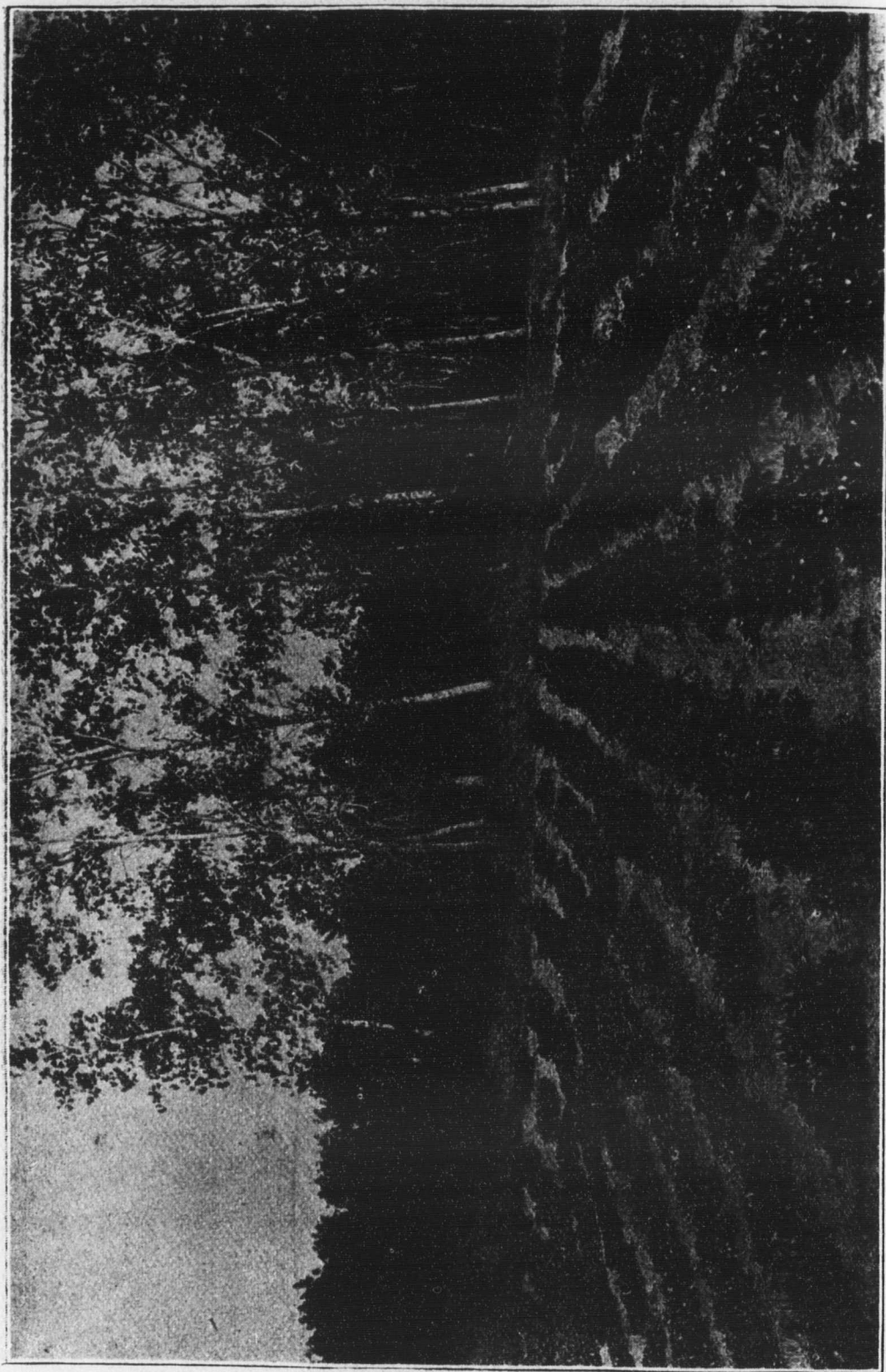
Peanuts have been grown in various parts of Kansas for many years, but the acreage has never been large. This is doubtless due to the large amount of hand labor required to put them in marketable condition and the long distance from the cleaning establishments or "peanut factories." The higher price of Kansas labor gives to Virginia and Tennessee another advantage, and as Kansas soils produce other crops in profusion, peanut culture is at present but one of the possibilities. In the peanut-growing states the vines are carefully saved for fodder. The feeding value of the fodder, always high, is greatly increased when there are numbers of small and immature nuts. In the search for nitrogenous stock food the peanut should not be overlooked. Stock eat vines and pods readily, the bulky pods insuring some considerable mastication of the kernels.

Our Kansas climate is quite favorable for peanut culture. The plant resists drought bravely, frequently forming a surprisingly large number of pods in very hot, dry weather. A light-colored soil has been generally considered as best for peanuts, from the fact that dark-colored soils are liable to stain the pods. Immature pods are nearly always dark colored, and though the stained pods may contain sound kernels, they look suspiciously like the immature pods. Any loamy soil may be expected to raise fair crops of peanuts, and even fairly heavy soils, if kept in good condition, will raise peanuts.

The crop should not be planted until the ground is well warmed and all danger of frost is past—not until after corn planting is over. The late date of planting gives a good opportunity to have

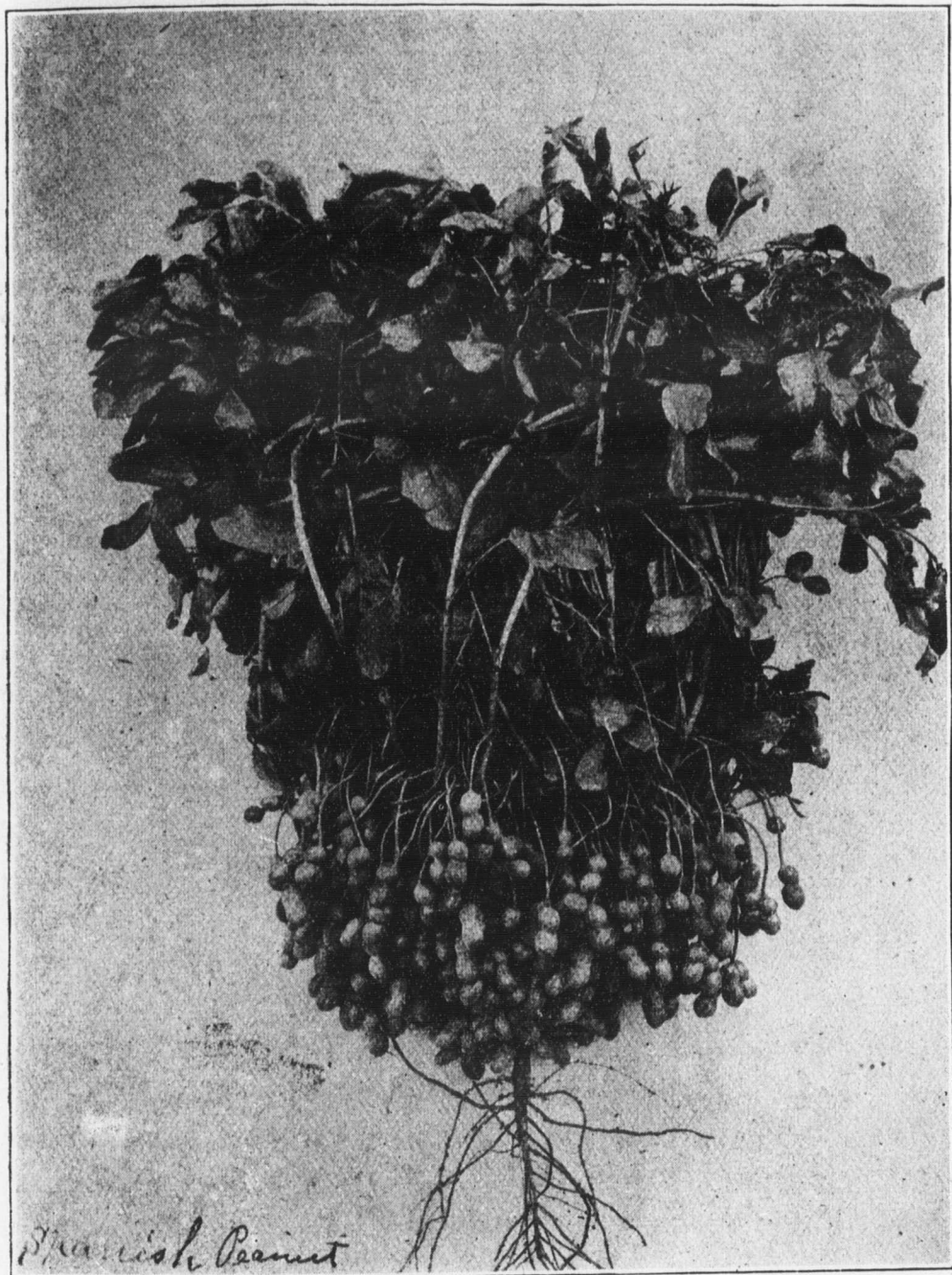


SPANISH PEANUT VINES.



VIRGINIA PEANUT VINES.

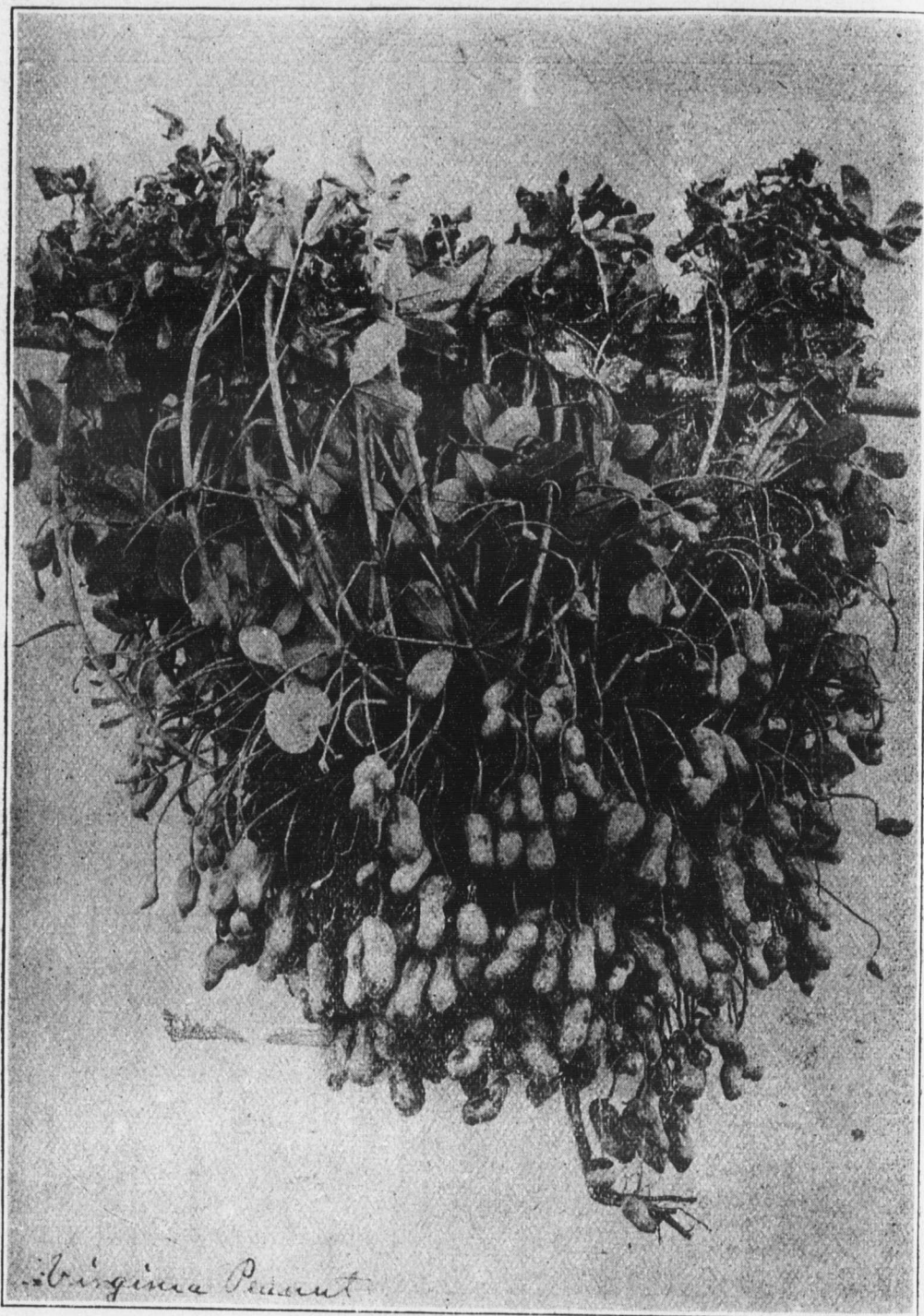
clean ground for the crop. Cultivation should be frequent enough to keep all weeds down and the soil in fine condition, but must not disturb the vines after the spikes begin to start into the ground. From the reports at our command and our own expe-



rience, it seems better to let the plant alone than to try to help by covering the vines with earth. In most cases the covering seemed to be injurious.

The crop should be dug before injury by frost, especially if the fodder is to be used. A heavy frost will often result in the pods loosening from the stems and a large part of the crop being lost.

In loose ground the digging is an easy matter, the tap-root cut, the plant may be easily pulled up. In a small way a spade may be used, but a plow or lister from which the moldboard is removed



is sometimes used. Large growers have a plow made for the purpose, with a cutting blade extending some little distance from the point of the plow. After digging, the earth should be shaken from the plants, keeping the pods down, and the plants piled in small piles to dry. They are sometimes piled around stakes, form-

ing a small stack, which may be protected by a canvas cover. Rain is very liable to discolor the pods and injure the quality. Picking the pods off the vines by hand is hard, tedious work, but when knocked off it required a cleaning establishment to put them into marketable condition.

The Horticultural Department of the Experiment Station has done some work with peanuts during the past two seasons. The varieties planted are Virginia and Spanish. The Virginia is also known as Large White. The Spanish variety is smaller, the kernels more nearly fill the pods, the inner coating is darker, and the kernels shorter and less pointed. This variety is in demand by confectioners for salting. The Spanish variety grows in a bush form, as will be noticed in the cut of the field.

In 1900 some of each variety were planted in soil that was a fairly heavy clay loam and compared with plantings upon light sandy land. The heavy land produced a much heavier growth of vines and a somewhat heavier yield of nuts than the sandy land. The distance between hills was the same with each variety, so the yield was seemingly against the Spanish, which, owing to its bush-like habit of growth, may be planted more thickly than the running Virginia variety. With the thicker planting and even a smaller yield per hill than we have had, the Spanish would equal the larger variety. Some of the records of the Virginia variety for 1900 are: Planted May 22; June 16, plants two inches high, with a spread of six inches; June 30, several blossoms on each plant; October 16, peanuts were dug. Ninety-one hills yielded fifty-four pounds of marketable nuts.

The dates of the Spanish variety were not materially different, but the yield was only about two-thirds that of the Virginia. The crop of 1901 was grown on the sandy soil and the relative yield is about the same per hill, but the closer planting of the Spanish made the total yield nearly equal—about fifty bushels per acre.

Some seed of the Virginia was planted for the Horticultural Department by Mr. W. W. Webb, of Sterling, Rice county, who has raised peanuts in a commercial way for a number of years. The soil in his locality is a sandy loam, much nearer the ideal peanut soil than either of the soils planted by the Experiment Station. The principal facts of his report are: Ground plowed and peanuts planted May 17, rows three feet and four inches apart, hills three feet apart. First appearance of plants, May 20. Cul-

tivated four times, hoed three times. Crop of four hundred hills dug October 10, yielding eight bushels of marketable nuts. This was a yield of about eighty-seven bushels per acre, considerably above the average yield. Mr. Webb had fifteen acres of peanuts which yielded slightly less than thirty bushels per acre. He accounted for the less yield by the fact that as grasshoppers were numerous he let many weeds grow among the peanuts. In good soil and with favorable seasons, from fifty to one hundred bushels is considered a satisfactory crop.

The cuts of the individual plants do not show the difference in the growth of the varieties, as the Virginia vine had to be bunched closely for photographing, but it will be noticed that the nuts are borne along the stems for a much greater distance than are the Spanish, which cluster thickly about the tap-root. The yields of the plants photographed were: Virginia, one hundred seventy-seven nuts, measuring three pints. Spanish, two hundred seventy-two nuts, measuring two pints. As the kernels of the Spanish more nearly filled the pods, the weight is slightly greater for the same measure of nuts.

The requisites for successful growing are: A soil that may be kept in a good state of cultivation; planting after the soil is warm, covering about two inches; good culture until the vines cover the greater part of the ground, taking care not to disturb the newly set pod.

A. DICKENS.

Secretary F. D. Coburn has purchased for the College the pure-bred Galloway bull First King of Avon of O. H. Swigart, Champaign, Illinois. This bull was purchased at the American Royal Cattle Show, Kansas City, where he won first prize in strong competition. First King of Avon also won this year first prizes at the Pan-American and at the Michigan State Fair and second at the state fairs of Iowa, Minnesota, Wisconsin, and Illinois. He is almost perfect in form and will be used in teaching students the form of a model beef animal. Besides being a wonderful individual, the College bull is one of the best-bred bulls in America. His sire, King Hensol 9967, was a great Columbian and state fair winner and won first in class and stood at the head of the first prize herd at the Interstate Fair, Atlanta, winning over Shorthorns, Herefords, and Red Polls, the Hereford being headed by the \$3000 imported bull, Salisbury. King Hensol rounded out his career when over eight years old by winning senior championship at the International Live Stock Exposition, Chicago, 1900.

THE INDUSTRIALIST.

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Manhattan, Kansas.

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LOCAL NOTES.

The carpenter shop has built a very neat shell case for C. W. Kimball.

The Manhattan schools have one hundred forty-three colored pupils enrolled.

The next meeting of the Manhattan Horticultural Society will be held on December 12.

There are sixty members now regularly enrolled in the Y. M. C. A. Bible study classes.

The stone work of the new building is nearly completed to the top of the main-floor joist.

The chrysanthemums in the greenhouses are coming on nicely and promise greater glory soon.

Miss Lorena Clemons gave a hallowe'en party to the "young set" of the Faculty. All report a good time.

Professor and Mrs. J. T. Willard very pleasantly entertained the married assistants last Wednesday evening.

The College creamery made its first run last Friday. The receipts amounted to twelve hundred pounds of milk.

Student J. H. White will deliver the *Daily Capital* to any address in town for ten cents per week. Leave orders at 431 Humboldt street.

Prof. E. W. Bemis, formerly professor of economics here, has recently been appointed superintendent of waterworks for the city of Cleveland, Ohio.

The first number of the College lecture course will be given in College chapel on November 12. It will be a concert by the John Thomas Concert Company.

Mr. E. H. Webster, the new instructor in butter making and cheese making, has an article in the *Chicago Dairy Produce* on Improved Cream Test Bottles.

Professor Mayo is happy this week. The Department of Veterinary Science has received eight new microscopes for use in the bacteriological laboratory.

The mid-term examinations for fall term were held last Saturday and the professors and instructors are busy working out the averages, while the students are anxious to hear the results.

Pres. E. R. Nichols was absent from College for several days last week, the Royal Stock Show at Kansas City and the State Board of Education claiming his time.

The Kansas State Dairy Association will meet at Manhattan, at the Agricultural College, March 4, 5, 6, and 7, '02, during the week set aside for judging dairy cattle.

The library has lately received a hundred volumes of newly bound books and magazines from the State printing-office, where they had been sent for new "overcoats."

The shell that exploded recently at Ft. Riley, wounding and killing several soldiers, has been donated to the K. S. A. C. It is of an unusual make and filled with shot and shrapnel.

The farmers' institute work is still going on at the rate of one to three or four institutes per week. In the next number we shall publish a list, with dates of all the institutes held so far during the summer and fall.

The high winds and the rain have ruined the fall colors of many of the trees and shrubs on the grounds, but the pin oaks and laurel-leaved oaks are just coming to their best and promise bright spots in the timber belts for some time to come.

Collecting, storing and planting seeds of the various forest trees is occupying the industrial classes in horticulture. The vineyards will soon receive their attention; tender varieties will be protected, all vines pruned, and refuse leaves and vines collected and burned.

The library is a busy place during the noon hours. Every available nook, corner and window bench is full of reading students. The new addition for which the last legislature has appropriated \$10,000, and which is to be built next spring and summer, will indeed fill a long-felt want.

One of the iron girders of the new Physical-Science Hall weighs nearly five tons. It took a double team and an extra wagon to transport it from the depot to the building site. The girder will find its place of usefulness directly over Professor Willard's experiment table in the new lecture room.

On Monday morning, October 28, a fine gold watch was stolen from the boys' water-closet. The watch is a Springfield make, bearing on its works the number 283,518 and on its case the number 248,780. Parties finding a clue of the whereabouts of this timepiece should report at once to President Nichols.

Mr. John Warner, a pioneer farmer and Shorthorn breeder of Riley county, Kan., was an interested visitor during the week. Mr. Warner is preparing to "adopt" one of the Kansas State Agricultural College boys for superintending his farm and herd, in order that he may have nothing to do but "boss."—*Kansas Farmer*.

I. D. Graham, Secretary of this College from 1881 to 1898, is now associate editor of the *Kansas Farmer*. Secretary Graham always pushed a facile and spicy pen, and his connection with the *Farmer* will add strength to its editorial force.

About twelve hundred people gathered at athletic park Monday, October 21, to witness the second football game between Kansas State Agriculture College and Bethany College, of Lindsborg. While the score was 17 to 0 in favor of Bethany, the game was not uninteresting, as the score would indicate. The Swedes outweighed the farmers some eighteen or twenty pounds to the man and made their gains by repeatedly bucking the K. S. A. C. line. The well-known Peterson brothers behind the line practically played the game for the visitors. A special train bearing some three hundred Bethany people accompanied their team. Many of the guests visited College and expressed themselves greatly pleased by the appearance of the buildings, campus, shops, and stock.

The Interior Department has decided the long-standing controversy between the State of Kansas and the settlers of the Fort Hays reservation in favor of the former. This decision is expected to be final and gives the State Agricultural College and the State Normal School possession of that body of about seven thousand acres of fine prairie land lying directly south of Hays City. The Agricultural College plans to convert its share of the land into a model experiment farm of several thousand acres, for the purpose of testing drought-resisting crops, such as alfalfa, Kafir-corn, soy beans, the various grasses, etc., and the comparison of methods of tillage and treatment. The size of the farm will permit these tests to be made on a large and paying scale. An appropriation of \$3,000 a year was made by the last legislature to start this highly promising work.

State Superintendent Frank Nelson, Pres. J. N. Wilkinson, of the State Normal, W. M. Massey, superintendent of Sumner county, and Superintendent Bushy, of Peabody schools, all of the State Board of Education, visited College last Thursday forenoon to look into our facilities for educating teachers; that is, for giving credits in case a graduate wishes to obtain a State teachers' certificate. Beside the three educational institutions of the State, the following colleges are allowed such credits for normal work: Central Normal College, Great Bend; Nickerson Normal College, Nickerson; Cooper Memorial College, Sterling; Salina Normal College, Salina; Campbell University, Holton; Baker University, Baldwin; Ottawa University, Ottawa; College of Emporia, Emporia; Friends' University, Wichita; Fairmount College, Wichita; Southwest Kansas College, Winfield; McPherson College, McPherson; Bethany College, Lindsborg; Kansas Wesleyan College. Some of these institutions receive more credits than others. The members of the Board were greatly pleased with everything they inspected. Hon. Frank Nelson addressed the students in the morning in chapel.

Prof. B. F. Eyer writes from Chicago, where he is studying physics at Chicago University, that he can not get along without the *INDUSTRIALIST*. He describes the new Armour Institute of Technology as a very fine institution in every respect, and speaks enthusiastically of the new million dollar building now being erected for its use.

George F. Thompson, formerly the superintendent of printing at this College, was a welcome visitor at Manhattan and on the "Hill" for several days last week. He had come west upon invitation of the Angora Goat Association, for whom he acted as judge at the Kansas City Royal Stock Show. Mr. Thompson is now the editor of the publications of the bureau of animal industry of the United States department of agriculture, and raises Angora goats "on the side." His bulletin on Angora goats, recently issued by the department of agriculture, has attracted much merited attention.

ALUMNI AND FORMER STUDENTS.

Lieut. R. B. Mitchell ['99] has been assigned to the first company of coast artillery stationed at Fort Dade, Port Tampa, Fla.—*Mercury*.

Rob Kimble [third-year student 1901] has received another promotion. He is now sergeant of Troop I, Thirteenth Cavalry, stationed at Fort Grant, Arizona. Rob takes to army life like an old vet., and his success in the service is assured.—*Nationalist*.

Howard Rhodes ['96], recently assistant postmaster here, is now traveling salesman for the Topeka Milling Company, of Topeka. After a trip of five weeks in Missouri, he spent from Saturday until Tuesday at home, going west again on the Rock Island.—*Nationalist*.

The papers contain a lengthy account of the recent accomplishments of D. G. Fairchild, '88, in the collection of seeds and plants in foreign lands and their introduction into this country. He is agricultural explorer for the United States department of agriculture, and has just started on another trip, this time to China and Thibet.

F. M. Jeffery, '81, formerly of Cripple Creek, Colo., is now located at Seattle, Wash., where he makes the practice of mining and corporation law a specialty. He sends an interesting note to the editor in regard to a recent reunion of people formerly connected with the College. The following were present: Professor Shelton, Mr. and Mrs. Wm. Shelton, Mr. and Mrs. A. C. Smith, Mr. and Mrs. C. J. Dobbs, Mr. and Mrs. A. G. Foster, Geo. A. Cox, and F. M. Jeffery. A very pleasant evening was spent in reviving memories of the past, and the company decided to hold regular meetings hereafter. A. N. Godfrey and wife live in that region also, and had expected to be present, but were prevented by an accident.

GRAIN WEEVILS.

(Press Bulletin No. 103, issued by Entomological Department.)

The common species of grain insects seem to be more than usually abundant this fall, as shown by numerous letters of inquiry received at the Kansas Experiment Station. The two forms most in evidence are the common grain moth and the black weevil, the latter generally more abundant. In either case the most ready method of their destruction is the employment of carbon bisulphide, one pound at least of the liquid to one hundred bushels of grain, or one thousand feet of space.

It seems likely from the varying degrees of success reported with this formula that certain essential conditions are not always strictly observed. In ordinary cribs and bins the most important provision is to make the room as nearly as possible gas-tight, in order that the gas may remain in all parts of the space in full strength and for the required time. It must enter by diffusion all cracks and crevices, even those between the grains of corn in the ear, and must penetrate the burrow of the individual weevil or its grub in the wheat berry. This thorough diffusion will only occur after some time, even in a saturated atmosphere. Twenty-four hours is short enough for certainty, even where the gas can be kept full strength in the bin.

Except with highly organized insects, death does not occur immediately, and partial suffocation may only render the insect insensible, leaving it to recover fully upon the airing out of the bin; or the gradual escape of the gas through cracks in the floor or sides of the bin, allowing the entrance of fresh air, may cause failure through the subsequent revival of the insect. The adult grain moth readily succumbs to the gas, while the larva will stand more and yet revive. The black weevil is most difficult to kill, specimens remaining over night in an experimental killing bottle sometimes recovering when removed therefrom the next day. Hence, to destroy all these it will be necessary to continue the action of the gas in full strength for at least twenty-four hours, and to do this the bin must be made tight, the fluid carbon bisulphide be used in liberal quantities, and in case of doubt, the experiment repeated.

Wheat may be largely kept free from weevil by proper handling, frequent shifting and fanning, such constituting the chief reliance in the elevators. Corn in cribs can scarcely be freed from weevil while remaining there, owing to the practical impossibility of making the crib sufficiently tight. Tarpaulins and stack-covers are useful in assisting to retain the gas within limits, but are by no means tight enough to prevent the escape of the gas by diffusion before the black weevil can be destroyed.

It is suggested by a correspondent that gasoline is equally effective with carbon bisulphide, and owing to its cheapness it can be used in certainly destructive quantities at little expense. It may be necessary to warn those who employ either of these liquids that the gas is highly inflammable and explosive when ignited; hence no fire or light should be allowed about the bin while the fumigation is in progress.

E. A. POPENOE.

DAIRY SCHOOL

OF THE

KANSAS STATE AGRICULTURAL COLLEGE

January 7 to March 28, 1902.

State Dairy Association: The fifteenth annual meeting of the Kansas State Dairy Association will convene at Manhattan, March 4, 5, 6 and 7, during the week of judging dairy cattle. Special programs will be arranged, including the best talent in and out of the State.

Reunion of Dairy Students: Students belonging to our former dairy classes will have their reunion and special program during the week of the State Dairy Association and the judging of dairy cattle. New and old students will have opportunities to meet dairymen and creamery men who are looking for young men to fill positions along dairy lines.

The special features of the Judging School, the State Dairy Association, the reunion of former dairy students, all unite to make the Dairy School of 1902 the most promising of any in the history of the institution. For further particulars address,

Pres. E. R. Nichols, - Manhattan, Kan.

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KANSAS STATE
AGRICULTURAL COLLEGE

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AMERICAN SOBRIETY AND COMMON SENSE.

THE sobriety of the American people is a theme not often chosen for public discussion. In fact, it might strike the foreign observer, especially the one who knows us only through the foreign press, that it was a theme that could hardly be discussed at all to our advantage. On several occasions during the recent war, for instance, we were the subject of much jesting on the part of the English press because we allowed ourselves to become so much agitated over our successes, even a little thing like the battle of Manila Bay not being overlooked by our people. But while our intense agitation is always noticed by and often furnishes much merriment for our foreign critics, these same critics seem entirely oblivious to a fact of equal importance, namely, the rapidity with which we usually regain our equilibrium. Take the recent agitation caused by the assassination of President McKinley as an example.

Not within the writer's memory has the public been so agitated over any event as that of the assassination of our late President. It was an event which, occurring in the way it did, was calculated to arouse the very deepest emotions of our people. The unprovoked attack; the President's courageous fight for life, followed by his calm resignation to a fate so undeserved; the sorrow of the stricken wife, the object of his intense devotion and tender solicitude; the nation's bitter grief at the loss of a man of whom history will probably say his worst fault consisted in a too great deference at times to the counsels of others, where his own better judgment should have prevailed—all these things, combined with our national hatred of anarchy and anarchists, tended to lash the public mind into a perfect fury for a time.

For a month or more following the President's death, the dastardly deed, and the consequences that it was felt would surely follow the assassin's example, continued to engross our attention. Many were seriously alarmed for the future of the country. So-

ciety was supposed to be on the verge of dissolution, from which fate nothing but the most heroic efforts could possibly save it. Almost everybody had a remedy for anarchy which he was ready to urge upon the government. The newspapers, with a few notable exceptions, vied with each other in suggesting the most summary treatment of the vile wretches who were responsible directly or indirectly for the infamous crime. Compared with the ills of anarchy, the blessings of a free government were apparently not valued for a moment. The most sacred guaranties of our liberties were as nothing if it could be shown that a single one of these might, on occasion, be found to furnish a refuge for a single foe of law and order. It was gravely suggested that not only a murderous attack upon a president, but even a "word or a picture inciting to it should be punished as treason" (though it might be difficult to explain how art could be punished, even for treason). One writer suggested that we purchase an island in mid-ocean somewhere, to which everybody who had ever been "known to give expression to anarchistic sentiments" should be at once deported. This island should "be carefully guarded at a distance, so that no escape shall be possible." And these foes of human society were to be left entirely to themselves, to enjoy the sweets of anarchy without molestation from any source. Let them live without government and without regard for God or man, but let them have the consequences all to themselves. Let them be an object-lesson to all the world of what it is to live in rebellion against all civil and divine government. "This proposition," it is added, "has been made in all sobriety by many persons. It is not a flighty and unmeasurable proposition."

It has been scarcely three weeks since propositions as fantastic as the above, as to the proper solution of the problem of anarchy, were listened to with apparent approval by the whole country. But to how many minds would they commend themselves to-day? Probably by this time they have been so completely dismissed from our minds as utterly impracticable, if not indeed as unworthy, that it is hard now to convince ourselves that they ever sprang from respectable sources, or found any avenues of communication open to them save the yellow journals of the country. In fact, most of our interest in anarchy as a practical problem for our legislatures to deal with has disappeared, so far as outward manifestations of that interest are concerned. The newspapers seldom

trouble themselves about the doings of the anarchists, and apparently no one any longer feels any serious apprehensions for the future of our country—at least for the near future. And yet we are the same people who a few days ago were breathing out death and destruction on these people, and seemingly ready to sacrifice our dearest-bought liberties “for the sake of a handful of miserable miscreants, whose names nobody can pronounce.” The President, too, goes about the country as unprotected as ever, and that with the apparent approval of the country generally. Yet again it should be said, we are the same people who, only a few weeks ago, were determined to surround him always with a body-guard that would be more suggestive of the Czar of Russia than of the head of a free republic. In the course of a few weeks Congress will meet, and then some legislation may be looked for that will better protect the President, or at least will attach a proper penalty to attempts upon his life. Something will be done, no doubt, to guard the country in the future against the introduction of noted anarchists from abroad, especially those who preach violence. And something ought to be done also to punish the advocacy in this country of violence of any kind against our government. This will probably be the extent of the legislation undertaken, and in all probability this will be going as far in this matter as public opinion will then warrant.

But what does all this apparent change in the attitude of the public mean? Not, certainly, that we have forgotten our recent loss; not that we have any less appreciation of a government founded on the strictest observance of law; not that we have any less a horror of anarchy and its detestable doctrines. Rather it means, in the first place, that the American people have an unshaken and unshakeable confidence in its ability finally to meet and triumph over all the ills from which society is suffering to-day, and in its ability to remove entirely the underlying causes of anarchism—to undermine its very foundation, so that it must fall of its own weight. But back of all and above all it means, that in spite of occasional moments of agitation, when it seems that the people are ready to listen to the wildest schemes of repression or reform, are ready to adopt the most drastic measures of legislation, there is after all a sobriety and a reserve fund of sound common sense that can always be relied on to restore, in a comparatively short time, the public

mind to its usual equanimity. There may indeed seem to be at times some frothiness on the surface of American life, but this ought not any longer to be taken as indicating anything as to the lack of a steady flowing undercurrent that is not easily nor often disturbed. It ought by this time, it would seem, to be apparent even to the most casual observer, that after all, in spite of our sudden and at times intense agitation, in spite of this apparent abandonment to our joys as well as to our sorrows, there is, when the hour of grave responsibility approaches, a spirit of moderation, of justice and of temperance that is bound to triumph over all mere momentary considerations; a spirit of hopefulness as well as resolution in the face of serious difficulties—in short, such a spirit as ought, in the main, to animate a truly great and powerful nation such as ours certainly is.

C. E. GOODELL.

ORATORY IN THE AGRICULTURAL COLLEGE.

FOR the benefit of those who may be interested, and also for the enlightenment of those who may be skeptical of the profit to be derived from the general study of oratory, in connection with an Agricultural, Engineering, Domestic or General Science course, I will briefly outline my method of teaching and developing this very important and necessary adjunct to any course of study, and in connection therewith will present some arguments tending to show its value.

Although, as taught and practiced during the past century, it has fallen into disrepute, it is and always will be a most important factor in the world. The profession itself is, in a large degree, responsible for its present standing. As with most everything, the spirit of commercialism entered into it. Good orators and readers are and have been in demand, and in catering to popular taste the speaker lowered himself to the level of a mere entertainer, instead of combining entertainment with instruction. Untrained and uneducated men and women, possessing more or less natural ability and talent, saw in it a comparatively easy and lucrative business, and of course presented a still lower grade of entertainment; and so it has gone on until now the ordinary elocutionist going over the country is nothing short of a buffoon, performing tricks with his mouth, and gyrating with his body in a manner

that would make a "sight-of-hand man" or a contortionist, green with envy.

A rattle-brained fellow, who may have studied a little law, or won a country school declamatory contest, or brow-beaten opponents in a debate, or who has a "powerful voice," will get up and make the welkin ring with *words*, and he will be called an "orator," but no one ever remembers what he says, nor does he move people to thought or action. Have you ever been so fortunate as to hear a man speak or read, who impressed you with his thought, and sent you home with a conviction and a resolve in your heart and a sense of gain, morally and mentally, for having heard him? Do you remember remarking that "it was a good, plain, common-sense talk," or "how easily and simply he talked," or "how clear his argument was," or "I never realized there was so much in that poem," etc.? You never once mentioned that he was an orator or elocutionist, and yet he was master of the art.

It was said of Wendell Phillips, that although he stood almost alone and appealed against the established order of things, and appeared before audiences almost wholly antagonistic to him, yet he faced them "with a tranquil mein and a beaming aspect that was never dimmed. He spoke, and in the measured cadence of his quiet voice there was intense feeling, but no declamation, no passionate appeal, no superficial and feigned emotion. It was a simple colloquy—a gentleman conversing. . . . The divine energy of his conviction utterly possessed him, and his

"Pure and eloquent blood
Spoke in his cheek, and so distinctly wrought
That one might almost say his body thought."

It is the duty of every one to be able to express thought in a simple, direct, earnest, spontaneous and convincing manner, for no matter what profession or line of work one follows, it is always necessary to do more or less talking, either in conversation, or in reading in the home circle, or in addressing an assemblage of neighbors and fellow townsmen. This ability is within the power of everyone to obtain, and is capable of development.

My method of developing the expressive powers requires, first, the total elimination of the idea that there is a trick or any artificiality whatever connected with it. It is the most natural and common of any art. In music or painting, in mechanic or industrial arts, it is necessary to follow rules and become expert in

the use of tools or instruments that are wholly without the organism of the man. It is something to be acquired rather than a growth. Expression is as natural to man as song is to the bird, or the bursting into bloom of the bud that has been tenderly nurtured through all the varying stages of its formation and growth.

Oratory is not a display, a show, a representation, a series of pretty and graceful movements, poses and vocal gymnastics, but it is a manifestation of the processes of thought, through the medium of the voice and body. All expression comes from within, out. It is the logical result of a definite cause, working through harmonious means. We must *have* thought before we can *give* thought; therefore it is essential that the mind be trained to think logically, and that the sub-conscious elements of imagination, emotion and feeling be brought into relationship in the giving expression to that thought. Words alone do not express anything; they are only the symbol or sign that calls up the knowledge already within the brain. Words alone, spoken in rapid succession, without thought or emotion behind them, are dead; a mere jargon; "sounding brass and tinkling cymbal;" but let a speaker vividly conceive and realize the greatness of the subject under consideration, and his words will burn their way into your very soul, pregnant with meaning, and full of intense interest and emotion.

It is also necessary to train the voice and body in order that an adequate means may be provided for the transmission of thought. This cannot be done by rule. If a speaker uses a given tone or quality (?) of voice, or emphasizes prescribed words in a prescribed manner, such as varying and distinctly named degrees of force or stress, or regulates his pauses by a system of marks of punctuation, or changes pitch "because a certain sentiment demands a certain pitch," or makes gestures because he is told to do so, or because they are pretty—in short, if he is thinking of "how to do it" instead of thinking the thought, and allowing it to regulate and control the action of the voice and body, he may get a certain amount of mechanical expertness in the repeating of the words, but he is a mere machine, a phonograph, a brainless thing so far as expressing thought is concerned. No sentiment demands the identical tone, pitch, rate, inflection, etc., on two different occasions. No simple sentence can be marked for empha-

sis in a manner that will express the whole thought all the time. It has almost as many meanings as there are words in it. So the training of the voice and the body is not for the purpose of making a machine of an individual, but to develop harmony between parts and to secure responsiveness to thought.

My understanding of the work in oratory in the Agricultural College is, not to train students for orators or readers primarily, but to develop their expressive powers to the extent that they will be able to use the knowledge that is theirs in benefiting others, and to be able upon occasion to express thought (either their own or another's) clearly, simply, intelligently, and forcibly, and in a convincing and pleasing manner. Oratory is a large conversation.

W. O. CLURE.

FARMERS' INSTITUTES.

THE Kansas State Agricultural College is one of the very first institutions in America that has held or assisted in farmers' institutes. Effective work of this kind has been done with varying results for over thirty years, but during the last half-dozen years these institutes have been extended to every county and, in fact, to every town which has cared to ask the College for assistance and offered some aid in getting up a promising program.

In former years this institute work was done during the winter months, but for the past two years the College has tried to do most of it in the summer. The results of this change have been very satisfactory—in fact, more satisfactory than had been anticipated. In the winter the weather is often too cold and the roads too bad for farmers to leave home; the Faculty have but little time to be away from their classes; the students can not assist effectively in working up attendance, as they always do in the summer vacation, and the social features, such as basket dinners, exhibitions of farm products, etc., are not as likely to be successful.

As will be seen by the following table, the attendance at some of these picnic institutes reached the thousand mark last summer; in three places it passed the two-thousand mark, while institutes of less than four hundred participants have been very rare. During the past summer and fall the following institutes have been conducted by members of the Faculty:

| | <i>Date and place.</i> | <i>Speakers.</i> | <i>Attendance.</i> |
|-------|--------------------------------|--|--------------------|
| July | 17, Overbrook | Cottrell | 2000 |
| " | 18, Lyndon | Cottrell | 800 |
| " | 19, Oak Grange | Cottrell | 100 |
| " | 20, Cadmus | Cottrell | 4000 |
| " | 23, Arkansas City | Cottrell | 350 |
| " | 24, Sibleyville | Cottrell | 700 |
| " | 26, New Lancaster | Cottrell | 100 |
| " | 26, Somerset | Cottrell | 500 |
| " | 26, Courtland | Popenoe and Walters | 550 |
| " | 27, Olathe | Cottrell | 800 |
| " | 31, Westmoreland | Otis and Clothier | 1200 |
| Aug. | 1, Cedarville | Walters and Elling | 1000 |
| " | 2, Liverpool | Roberts | 250 |
| " | 16, Jennings | Dickens and Cottrell | 500 |
| " | 17, Tonganoxie | Coburn and Otis | 350 |
| " | 21, Burlingame | Dickens and Elling | 500 |
| " | 22, Acme | Otis and Sawdon | 450 |
| " | 22, Highland Station | Dickens | 400 |
| " | 24, Union Center | Walters and Kinsley | 350 |
| " | 24, White City | Elling and Otis | 350 |
| " | 27, Berryton | Otis | 1000 |
| " | 29, Angola | Cottrell | 500 |
| " | 29, Portis | Walters | 250 |
| " | 30, Americus | Professor and Mrs. Otis | 500 |
| " | 30, Leon | Cottrell | 350 |
| Sept. | 5, Hays City | Cottrell and Otis | 2000 |
| " | 6, Herington | Popenoe and Roberts | 150 |
| " | 6, Little River | Cottrell | 450 |
| " | 7, Dolespark | Cottrell | 100 |
| " | 7, Garnett | Walters, Otis, and Alexander | 450 |
| " | 11, Bendena | Willard | 200 |
| " | 12, Winchester | Otis and Greene | 700 |
| " | 13, Milton | Otis and Greene | 150 |
| " | 14, Benton | Otis and Greene | 75 |
| " | 18, Melvern | Cottrell and Agnew | 150 |
| " | 19, 20, Ottawa | Cottrell, Agnew, and Otis | 150 |
| " | 26, Chanute | Dickens and Uhl | 300 |
| " | 27, Elsmore | Dickens and Uhl | 500 |
| " | 28, Lone Elm | Dickens and Uhl | 400 |
| " | 28, Gypsum | Kinsley | 250 |
| Oct. | 3, Blue Mound | Willard and Shoesmith | 350 |
| " | 3, Hiawatha | Walters and Cottrell | 75 |
| " | 4, New Lancaster | Willard and Shoesmith | 65 |
| " | 5, Bucyrus | Willard and Shoesmith | 200 |
| " | 5, Junction City | Greene and Kinsley | 50 |
| " | 8, Denison | Otis and Calvin | 500 |
| " | 11, 12, Girard | Otis and Calvin | 300 |
| " | 18, Augusta | Otis and McIntyre | 50 |
| " | 18, Admire | Kinsley and Shoesmith | 400 |
| " | 19, Florence | Kinsley and Shoesmith | 250 |
| " | 19, Douglass | Otis and McIntyre | 350 |

| <i>Date and place.</i> | <i>Speakers.</i> | <i>Attendance.</i> |
|----------------------------------|--------------------------------|--------------------|
| Oct. 25, Bellflower Grange . . . | Mayo and Dickens | 200 |
| " 26, Clatawa Grange . . . | Mayo and Dickens | 150 |
| Nov. 9, Garrison | Walters and Cottrell | ... |

Arrangements have been made for several additional institutes and the good work will be going on at a vigorous rate until the cold and uncertain winter weather will make the results unsatisfactory.

Some years ago the universities of the West inaugurated the university extension work and made a good deal of ado over it. Extensive plans and programs were being published and it was expected that their work would soon reach every town in the land; but they met with limited success. To-day there is but little work done and the whole scheme has practically gone to sleep. In the meantime the Agricultural College has gone on quietly with its College extension work, pushing it into every county and making it a characteristic feature of Kansas farm life. The farmers' institute is a fixture in our State; it is a red-letter day in the almanac of our farmers and stockmen.

J. D. WALTERS.

M. R. Platt, of Kansas City, Mo., but whose farms are in Johnson and Comanche counties, Kansas, has donated to the College the two pure-bred Galloway heifers, Golden Sunset of Dyke Creek and Black Velvet of Dyke Creek. Mr. Platt has the largest Galloway herd in the world, and since 1876 has introduced into his herd the best blood that he could secure in both Scotland and the United States. Mr. Platt said to Professor Cottrell: "My old friend, Secretary Coburn, is now a Regent of your College. He will push the live-stock work of the College as it has never been pushed before. I want to help him. You may send the best expert that you have and let him select the best two heifers in my herd and I will give them to the College to help Secretary Coburn in his work of building up animal husbandry in your College." The two heifers are choice individuals and would probably sell for \$400 each at auction. They are descended from Black Prince of Drumlanrig, the premier Galloway bull of modern times. He was never defeated in the show ring, and \$4,500 was offered and refused for him when he was upwards of eleven years of age. It is hard to express the hearty appreciation we have of Colonel Platt's generosity. These model heifers will be of great value to the students in learning the typical beef form.

THE PRAIRIE-DOG IN KANSAS.

SEVERAL months ago Press Bulletin No. 97, containing questions as to the distribution of the prairie-dog, the pocket-gopher, the striped prairie-squirrel, and the gray prairie-squirrel, with blanks for replies, was sent by the Experiment Station to every township trustee in Kansas. Stamped envelopes for reply were enclosed. Of the fourteen hundred blanks sent out, four were returned to this office as unclaimed and six hundred eighty replies have been received. The answer relating to prairie-dogs have been tabulated and shows that sixty-eight counties of the State have these pests present. The following table exhibits the number of townships in the affected counties, the number of trustees who have made reports, and the number of acres occupied by "dog towns:"

| COUNTY. | Number of Townships.. | No. Twp's Reporting.. | Number of Acres | COUNTY. | Number of Townships.. | No. Twp's Reporting.. | Number of Acres. |
|----------------|-----------------------|-----------------------|-----------------|-----------------|-----------------------|-----------------------|-------------------------|
| Barber..... | 18 | 7 | 7,605 | Meade..... | 9 | 2 | 10,000 |
| Barton..... | 21 | 1 | 5 | Mitchell..... | 20 | 8 | 1,700 |
| Butler..... | 29 | 13 | $\frac{1}{2}$ | Morton..... | 3 | 3 | 10,800 |
| Cheyenne..... | 17 | 16 | 14,780 | Ness..... | 10 | 5 | 15,425 |
| Clark..... | 10 | 6 | 50,010 | Norton..... | 22 | 12 | 3,120 |
| Cloud..... | 18 | 9 | 960 | Osborne..... | 23 | 6 | 2,840 |
| Comanche..... | 10 | 5 | 22,470 | Ottawa..... | 20 | 8 | 139 |
| Cowley..... | 25 | 15 | $\frac{1}{2}$ | Pawnee..... | 13 | 9 | 651 |
| Decatur..... | 23 | 7 | 1,360 | Phillips..... | 25 | 7 | 730 |
| Dickinson..... | 24 | 11 | 1 | Pratt..... | 17 | 8 | 595 |
| Douglas..... | 9 | 6 | $\frac{1}{2}$ | Rawlins..... | 20 | 12 | 7,315 |
| Edwards..... | 9 | 4 | 2,020 | Reno..... | 30 | 15 | 1,694 |
| Ellis..... | 14 | 6 | 10,820 | Republic..... | 20 | 10 | 292 |
| Ellsworth..... | 16 | 8 | 2,770 | Rice..... | 17 | 8 | 157 |
| Finney..... | 7 | 4 | 212,160 | Rooks..... | 22 | 11 | 6,010 |
| Ford..... | 14 | 10 | 15,920 | Rush..... | 15 | 7 | 3,065 |
| Gove..... | 8 | 7 | 211,960 | Russell..... | 9 | 4 | 855 |
| Graham..... | 13 | 8 | 11,260 | Saline..... | 19 | 10 | 375 |
| Grant..... | 3 | 3 | 10,500 | Scott..... | 7 | 5 | 70,800 |
| Gray..... | 6 | 3 | 12,000 | Sedgwick..... | 27 | 17 | 307 |
| Greeley..... | 3 | 3 | 12,000 | Seward..... | 3 | 2 | 22,300 |
| Hamilton..... | 8 | 6 | 17,220 | Sheridan..... | 13 | 8 | 8,370 |
| Harper..... | 19 | 7 | 626 | Sherman..... | 13 | 7 | 13,840 |
| Harvey..... | 15 | 7 | 10 | Smith..... | 25 | 15 | 1,261 |
| Haskell..... | 3 | 2 | 8,200 | Stafford..... | 19 | 9 | 3,150 |
| Hodgeman..... | 9 | 6 | 8,290 | Stanton..... | 3 | 2 | 2,200 |
| Jewell..... | 25 | 12 | 563 | Stevens..... | 3 | 1 | 22,200 |
| Kearny..... | 5 | 2 | 4,450 | Sumner..... | 30 | 12 | 155 |
| Kingman..... | 23 | 8 | 340 | Thomas..... | 10 | 6 | 16,360 |
| Klowa..... | 13 | 7 | 3,060 | Trego..... | 7 | 5 | 25,340 |
| Lane..... | 9 | 5 | 19,000 | Wallace..... | 7 | 3 | 66,500 |
| Lincoln..... | 20 | 7 | 400 | Washington..... | 25 | 12 | 80 |
| Logan..... | 11 | 11 | 236,460 | Wichita..... | 3 | 2 | 9,000 |
| McPherson..... | 25 | 14 | 692 | | | | |
| Marion..... | 24 | 11 | 315 | Totals..... | 1015 | 518 | 1,224,854 $\frac{1}{2}$ |

The agent of the Station has made personal investigations in several of the counties from which the heaviest acreage is reported and thinks that, while many of the trustees have made mere guesses in their replies, they have not exaggerated in their

statements. It will thus be seen that about one-half the townships in the district affected report one and a quarter million of acres of land occupied by prairie-dogs. This is nearly all pasture land. The general estimate of damage to this pasture by the animals is fifty per cent, though many farmers think it is greater. One farmer in Wallace county says that his cattle will not eat grass on that part of his range occupied by prairie-dogs. A ranchman in Logan county says he is now able to pasture only five hundred head of cattle on the same range where he pastured one thousand head ten years ago, when the prairie-dogs were not so numerous.

D. E. LANTZ, *Field Agent.*

Secretary Coburn, of the State Board of Agriculture, has issued a booklet showing that Kansas occupies first rank in the production of wheat and corn for the five years beginning with 1896 and ending with 1900. The value of wheat and corn for this period is \$378,433,347, and the value of this years wheat crop is, according to government reports, \$45,368,760. The book is a gentle reminder to U. S. Secretary Wilson, who spoke of Kansas in one of his reports as being a semiarid state.

Professor Willard is in Washington, D. C., this week attending the meeting of the association of official agricultural chemists and the convention of agricultural colleges and experiment stations. On the way he will visit Johns Hopkins University, at Baltimore, and take the opportunity to look up a number of points there and elsewhere with a view to benefiting the Chemical Department in both the College and Experiment Station work.

President Nichols left on Friday noon for Washington, D. C., to attend the annual meeting of agricultural colleges and experiment stations. He intends to visit a number of educational institutions while on this trip and expects to be absent about ten days. Professor Walters will look after the routine duties of the executive office pending the absence of the President.

Mr. C. P. Dewey is constantly improving his Park Place dormitories. He has lately ornamented the center building with a beautiful sign, "Park Place," formed of colored incandescent lights, the first sign of the kind in Manhattan.

Assistant Hetty Evans, of the Department of Industrial Art, has two afternoon classes in freehand drawing of ninety students each. It takes heroic work to teach such classes.

THE INDUSTRIALIST.

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Manhattan, Kansas.

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LOCAL NOTES.

Regent McDowell was at the College last Monday on business.

Professors Walters and Cottrell went to Garrison on Saturday to conduct a farmers' institute.

The *Students' Herald* sports a new title-page. We liked the old one better; but then, tastes differ.

Doctor Mayo has been appointed secretary for Kansas of the American Veterinary Medical Association.

Second-year student Harry Campbell has left for his home at Macksville, Stafford county, on account of sickness.

The demand for blackleg vaccine continues to increase, the Veterinary Department sending out about fifteen hundred doses daily.

Professor Walters will give an evening lecture before the West Kansas Teacher's Association, at Dwight, at their Thanksgiving session.

The College football team left on Saturday for Emporia, where they played the Normals on Saturday and the Presbyterians on Monday.

Miss Lois Deming, who was called home on account of sickness, has returned and taken up her work as stenographer in the Veterinary Department.

Professor Walters will deliver the annual address at the regular meeting of the Swiss-American society of Northern Kansas, at Marysville, November 16.

The K. S. A. C. football team went down to defeat before the fierce onslaughts of the Kansas City doctors here Wednesday. The game was marked by wrangling, some good and a great deal of indifferent football.

Mr. C. P. Dewey took the student boarders of Park Place to the opera-house last week to witness "Cleopatra," by the Morey Company. It would be hard to say who enjoyed the treat better, the treater or the treatees.

The classes in calisthenics have moved into the new Gymnasium and are drilling regularly. Mrs. Clure has taken charge of the work of physical training of the young women till a permanent teacher can be found.

Professor McKeever, of this College, and Supt. M. R. Howard, of Leavenworth county, are preparing a new spelling-book for use in the lower grades in the public schools.

P. H. Mahon, Clyde, Kan., has donated to the College a pen of ten pullets and one cockerel pure-bred rose-comb Brown Leghorns. The chickens are a credit to his skill as a breeder and will be of immediate value to the Farm Department in its work with poultry.

The Veterinary Department has been investigating some cattle diseases, one an apparently contagious sore mouth and the other a kind of distemper, associated with swelling of the glands in the region of the throat. Press bulletins on these diseases will be issued soon.

Prof. D. H. Otis left Thursday morning for Missouri to deliver an address before the Missouri State Dairy Association at Palmyra, in the northeastern part of Missouri. The professor has also been invited to deliver a lecture before the Illinois State Dairy Association, which meets during the holidays.

The sale of the Manhattan Live Stock and Sales Company last Saturday drew a good crowd, despite the threatening weather, and the sale was very satisfactory, the stock bringing good prices. Thirty-eight head of Hereford two year olds sold for \$47 a head and nineteen head of Hereford three-year-olds for \$50 a head.

ALUMNI AND FORMER STUDENTS.

H. W. Baker, second-year student last term, visited College recently. He is mounting the herbarium of Mr. B. B. Smyth, of Topeka, this fall.

C. C. Smith ['94], son of Capt. J. T. Smith, of this city, has sold his paper, the *Lyndon Remark*, to J. K. Shriver, of Lyndon. Mr. Smith goes to Topeka, where he will take up work on the *Topeka Herald* about November 15.—*Mercury*.

M. W. Sanderson, '98, visited the College last week. He is now county surveyor of Marshall county, having been appointed to this office by the governor on the death of the previous surveyor. Mr. Sanderson had served as deputy surveyor previously.

R. W. Clothier, '97, professor of agriculture and chemistry in the Third District State Normal School of Missouri, finds his work opening up very promisingly. He is to deliver an address before the Southeast Missouri Teachers' Association on "Agriculture in the Rural Schools."

Prof. S. W. Williston ['72], of the University of Kansas, is the author of a two-hundred-fifty-page quarto volume on the flies of Central America, which is to be issued by a London publishing house as one of a series of thirty volumes constituting the *Biologia Centrali-Americana*.—*University Newsletter*.

KANSAS STATE AGRICULTURAL COLLEGE

FARMERS' SHORT COURSE.

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Special Feature, the Judging School.

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Poultry, Beef and Dairy Cattle,
Swine and Horses.

INSTRUCTION IN ~~~~~●

| | |
|---------------------------|----------------|
| Crop Production. | Orcharding. |
| Stock Feeding. | Gardening. |
| Stock Breeding. | Blacksmithing. |
| Stock Judging. | Carpentry. |
| Diseases of Farm Animals. | |

JUDGING HORSES

March 17 to 22, J. W. Robison, of El Dorado, will give instruction in judging draft and driving horses. The College will have some of the best horses in the State for this work.

Mr. Robison has the largest herd of Percheron horses in the State and also breeds standard trotting horses. He recently spent the summer in the great horse-breeding sections of France and made a choice importation of Percherons.

Besides his extensive horse interests, Mr. Robison owns and manages farms aggregating 16,000 acres. His corn fields cover 1200 acres, his alfalfa fields 1000 acres, and other crops in proportion. He has 12 large orchards, 1500 cattle and hundreds of hogs. It will pay to learn from so successful a farmer. You have 20 friends who would take this work if they knew of it. Tell them.

Full particulars from

Pres. E. R. Nichols, - Manhattan, Kan.

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Number 8.

THE INDUSTRIALIST

ISSUED WEEKLY BY

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AGRICULTURAL COLLEGE

☆ ☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
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THE INDUSTRIALIST.

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PROBLEMS AND POSSIBILITIES IN PLANT BREEDING.

A VERY prevalent idea is, that a hybrid plant is a "high-bred" plant, and the work of the plant breeder is popularly supposed to be the origination of improved varieties by hybridization. This conception doubtless owes something of its origin to the brilliant parti colored advertisements in the florists' catalogues, in which this and that hybrid Petunia, Orchid or Hyacinth is exploited as a rare and choice production. Such may be the case with respect to the plant advertised, but what the public does not know is, that it is a single desirable among a hundred undesirable and mediocre productions of the plant breeder's work. What hybridization does effect most commonly is a sort of a general unsetting of the species, so that the progeny tend to vary greatly from each other and from the parental forms. It is this tendency to variation which the plant breeder most desires as a basis for his principal and most fertile line of work; conscious selection toward an end.

Occasionally, to be sure, the direct result of hybridization is a striking and valuable form, but far more often such forms are to be obtained only by years of careful selection among the varying progeny of the cross.

Nature has set certain barriers to the crossing of both too nearly and too distinctly related species. But inasmuch as "species," "genera," and all other systematic groups are matters of judgment, and inasmuch as the validity of judgments as to what organisms are entitled to be classified together in such biological assemblages, depends on the personal equation of the men who do the arranging, it is clear that no one can say beforehand, except within very wide limits, what individuals will or will not cross, on the basis of their more or less commonly accepted place in a scheme of scientific classification. In general, however, it is known that individuals too distantly or too closely related tend to be sterile to each other.

A word as to the distinction between a "cross" and a "hybrid." Such distinctions are really verbal ones. In customary use, "cross" is the name applied to a hybrid where the parents are nearly related; "hybrid," to a "cross" between parents distantly related. So that in the case of seed plants, all fertilization where the reproductive cells come from different flowers would be entitled to be called cross-breeding, and would vary in degree according as the point of origin of the reproductive cells was on the same branch of the same plant, on different plants of the same "horticultural variety," on plants of different horticultural varieties, plants of different "species," and so on. The more distantly related the parents the more likely is the process of crossing to be called "hybridization," and the result a "hybrid."

The plant breeder soon learns to shake off any conscious or unconscious feeling that there is sacredness in "species," and that "crosses" and "hybrids" are anything but names which have degree of difference as their only distinction.

The plant breeder may begin with "wild" plants, in which he finds a certain fixity of type, a certain rigidity, owing to long reaction to the same environment, and to the limitation of whatever tendency to vary they may have had, by reason of their lively struggle with other plants, and with animals, for privilege to exist. In wild plants, variations which encumber their possessors mark them as objects of extinction, although these variations may be beautiful, valuable or advantageous in the eyes of man. If, however, a plant breeder seizes upon such a variant form and transfers it to an environment where competition is artificially kept down, the basis may be laid for the development and fixation by subsequent selection, of absolutely new forms, very different from the original wild native form. Such is the history of the origin of many cultivated fruits and vegetables.

On the other hand, the scientific plant breeder may begin his work upon a form which man for economic reasons has for ages, wherever he has made his home, kept out of competition with native plants. In such a case he is usually dealing with a plant in which the inherent tendency to vary has already been given considerable scope by virtue of cultivation for generations; for variation is most apt to show itself where abundance in the food supply and freedom from unduly limiting competition have given full play to all the activities of the organism.

Such plants are our cultivated cereals, the history of most of which, as the servants of man, antedates written records. Of all of them, wheat is the most universally desired and desirable as a source of food, and the improvement of no cereal means so much to the world in an economic sense as does that of wheat. The breeder who is dealing with the wheat plant has in the first place carefully to consider the local conditions of his station and the general type of plant most likely to succeed there. The breeder in the Dakotas would not experiment with winter, nor the breeder in Tennessee with spring wheats, for example. Nor will the breeder in Kansas or Nebraska expect to succeed with the types of wheat regarded as standard in the moister eastern states. Every locality has to develop its own type of wheat. In Kansas, there is but one Agricultural Experiment Station, with a territory 400 miles in length and 200 miles in width as its field of operation, and comprising considerable variations in climatic conditions, within the general variation which it presents as a whole to the states bordering the Mississippi river on the east. The wheat breeder of Kansas must hold in mind the fact that wheat is raised in every county of the State, but that the same kind of wheat cannot be successfully raised in every county, and that wheat breeding, say for Grant county and Rawlins county farmers, must have a different wheat ideal, so to speak, from wheat breeding for Douglas or Shawnee counties.

It goes without saying, that an abundant yielder is a primary need. The plant breeder can do something in this direction, especially by breeding a wheat which will have a fuller head. Now, a wheat "head" is simply a series of "spikelets" arranged spirally around an axis. Each spikelet is a small branch bearing three flowers, of which, in the wheats commonly grown here, the central one is weak, inferior, and tends to abort. If every spikelet on a head can be made to carry to maturity three instead of two grains, and those grains be large and heavy, the wheat yield can be increased. Wheats with this tendency well developed exist among the "club wheats" of the Pacific coast. These, however, often have the "shattering habit"—that is, the "glumes" which enclose the grain open and let it fall to the ground easily. In a windy region like Kansas such a habit is fatal, and the shattering habit must be bred out by crossing with non-shattering wheats, of which we have an abundant number.

Another end to be aimed at in all wheat breeding in Kansas is ability to stand very dry conditions of soil and air, which often do not come, but which are a permanent possibility here during the period between the middle of September and the middle of June. However good a yielder, if a wheat is not "xerophytic," as scientific phraseology puts it, it will not do for Kansas; and the farther west we go in the State the more xerophytic the wheat must be. Resistance to attacks of parasitic fungi, notably the rusts, is an important characteristic. We are fortunate in having within our grasp the macaroni wheats of southern Russia and the Balkan states of Europe, which possess in the highest degree xerophytic characteristics and rust-resisting powers. But the macaroni or durum wheats are exceedingly rich in gluten—too rich for their satisfactory use as bread wheats as the present taste for bread exists in America to-day. In many European countries, however, this more glutinous flour is greatly liked for bread making. It is all a matter of local taste and prejudice. Perhaps we may alter our tastes somewhat after a time. In the meanwhile we shall cross our best local bread wheats with macaroni wheats to improve them in the respect in which the latter possess superior qualities. We shall cross our local wheats with the heavier yielding club wheats of the Pacific coast, and we shall expect to find innumerable variations as the result of these crosses. From among these varieties we shall rigidly and carefully select the best and most promising offspring and seek to "breed up" better wheats for this region.

But the work of the plant breeder is useless if these carefully bred and selected wheats are carelessly planted and the best seed is no longer selected for planting by the farmers into whose hands these wheats may come. Soil impoverished in the chemical constituents needed by the wheat plant, owing to too long continued wheat cropping with no rotation to leguminous crops to restore the lost nitrogenous compounds, will not produce good crops with seed from the best high-bred wheats.

A succession of wheat crops raised from seed, unselected, ungraded, uncleaned, full of the seeds of weeds, small inferior grains and chaff, will inevitably degenerate, and that very rapidly, however creditable its original source.

In a way every farmer can be a wheat breeder; not by crossing, for that usually demands too much time, technical skill and

patience for us to expect it to be generally made use of; but by careful annual selection of seed from the best and most vigorous plants. Let this seed be run through a first-class seed cleaner and grader, of which several are on the market, and let only the large, heavy, "No 1" grade be planted. In this way the efforts for the improvement of wheat can be substantially aided in every wheat-growing locality of the State.

H. F. ROBERTS.

LITERATURE IN THE COUNTRY HOME.

AFTER hearing him read a few paragraphs aloud, it is easy to make an estimate of the amount of reading that has been done at home by the young student. In my experience in teaching the English classics I have found that the student who has done only the reading incidental to the ordinary school course is almost invariably a poor reader. He may seem to have a good deal of culture; but it is of the superficial kind, and beneath it all one can easily discover that defect of understanding which comes from the neglect of practice in general reading. To be a good reader is usually to be a good thinker; and, other things being equal, the young person who can read understandingly has a great advantage in life's battle over the one who cannot.

There is a period of about six years—from twelve to eighteen—during which the average young person living on the farm might have a taste for good literature most easily cultivated, and during which there ought to be laid in the home a foundation for the future intellectual career. The proper start in a course of good reading will accomplish this end. But whose duty is it to look after this matter? Manifestly that of the parents. The district school-teacher can not be held responsible to any great extent under present conditions; for, in most cases, she is already overburdened with the work that pertains to the school exclusively, and therefore can not teach literature. But many parents who know better are very negligent of their duty in this matter and permit their children to grow up without the wealth of life-giving thought and inspiration that comes only through good reading. It is to this class of parents and to those who may be convinced of this need that I shall direct a few statements presently. First, a word as to the newspaper.

Some years ago it was my pleasure to interview more than six

hundred farmers on the subject of newspaper reading in the home. Out of this number it was interesting to notice that less than ten per cent were reading dailies, about five per cent semi-weeklies, and the others, excepting three and one-half per cent, the ordinary local weekly only. Three and a half per cent were not taking any papers at all, notwithstanding the fact that they lived in one of the best farming communities in Kansas. An inquiry on the subject usually brought out the reply, "Too busy," "No time to read," and the like. These were nearly always men who could have afforded a paper but who were so busy overworking themselves that they saw no opportunity for reading. I am sure that out of all these six hundred cases only a small minority were getting any real lasting benefit out of their newspapers.

I will now give some suggestions as to a method of introducing a better class of literature in the country home. First, mail a postal card to one or two book publishing houses, asking for their catalogues. In these one will find lists of excellent cloth-bound books of every description, ranging in price from fifteen cents up. Call in some one for advice, if need be, and make a list of a dozen or more good volumes. Five or six dollars will pay the bill. When these are received, give them to the boy or girl for a birthday or a Christmas present, together with a bookcase to put them in. The youth will soon begin to take pride in his "library" and gradually learn to use it, soon becoming desirous of adding to it. Once get him started to reading good books and your part of the work is practically done.

I should urge, also, that more attention be paid to the class of newspapers and magazines that come into the country home. Besides the local paper and a good farm paper, there ought to be some such periodical as *The Youths' Companion*, and another such as *The Literary Digest*, or *The Review of Reviews*. These may all equal annually in cash the price of a good-sized shoat, but no porker could possibly be turned to better account. Contribute at least one whole hog per year to the cause of good, clean literature in the home, and thereby save the boy or girl from mental and spiritual degradation. Many a farmer spends more than this sum for his annual supply of tobacco.

Here is a list of a dozen books that would form the nucleus of a first-rate library for the boy or girl: *Evangeline* (Longfellow),

First Jungle Book (Kipling), Vicar of Wakefield (Goldsmith), Story of the Chosen People (Guerber), Book of Golden Deeds (Younge), Green Fields and Running Brooks (Riley), David Copperfield (Dickens), Wild Animals I Have Known (Seton-Thompson), Autobiography (Franklin), Enoch Arden (Tennyson), The Sketch Book (Irving), Tales from Shakspeare (Lamb). All such books as these can be obtained from A. C. McClurg & Co., or The Book Supply Company, both of Chicago.

W. A. McKEEVER.

THE JUDGES FOR THE JUDGING SCHOOL.

THE special feature of the short-course work this year will be stock judging. Great interest has been shown in this work by the farmers and stockmen of the State, and these friends will be interested to know more of this special instruction than is told in our circulars..

C. H. Rhodes, of Topeka, will give instruction in judging and scoring poultry February 17 to 22. Mr. Rhodes has for several years been recognized as one of the most competent poultry judges in the West. This season he will act as judge at leading poultry exhibitions in Kansas, Colorado, Missouri, Nebraska, and Oklahoma, and has received many more applications for judging than he can find time to fill. He will act as judge this year for the fourth time for the Kansas State Poultry Association. Judge Rhodes has been a successful breeder of nine breeds of chickens—Light and Dark Brahmas, Partridge and Black Cochins, Hamburgs, Polish, Plymouth Rocks, Buff Rocks, and Bantams. In January, 1900, at the Illinois State Poultry Show, his Black Cochins won all first, second and third prizes.

John Gosling, Kansas City, Mo., will instruct in judging beef cattle February 24 to March 1. Mr. Gosling has been a judge of beef cattle at state and other fairs in Ohio, Indiana, Missouri, Minnesota, Iowa, Nebraska, and Texas, and Chicago and Kansas City fat-stock shows. In December he will be one of the judges at the International Live Stock Exposition, Chicago. The *Breeders Gazette* says: "Among all the men who have climbed to the top rung of the ladder of fame as experts on beef cattle none stands more conspicuous than Mr. John Gosling. A judge among judges, Mr. Gosling is not surpassed in his keenness of scrutiny, thoroughness of analysis and clearness of conclusion.

Moreover, few men possess the ability to set forth their views with such clearness and perspicuity. A keen eye, an educated hand and a judicial temperament unite to win supreme respect for Mr. Gosling's conclusions among the hundreds of cattlemen who are fortunate to know him." Mr. Gosling selected the sensational prize winners, Grace, Plush, Sensation, and Frank M., before they had been shown, some of them while calves, and he fattened range-raised Hereford steers that commanded seventy-five cents above market price, he guaranteeing them to dress 65 per cent. The scales showed dressed weight of 65.48 to 66 per cent.

T. A. Borman, Topeka, will teach judging dairy cattle March 3 to 8. Mr. Borman started in Dickinson county with a common herd and, through his knowledge of what a dairy cow should be, bred up his herd until he secured an average of \$81 per cow a year selling milk to a creamery. Starting with common mixed cows, by careful selection and breeding in six years he developed a grade cow that produced twelve thousand pounds of milk and four hundred seventy-six pounds of butter in a year with Kansas-grown feeds. The average scrub cow gives seventy pounds of butter in a year. Many of the cows from his breeding refuse to become dry. Mr. Borman is secretary of the Kansas State Dairy Association, editor of the *Dairy Age*, and assistant manager of a creamery that makes two million pounds of butter a year.

Geo. W. Berry, Berrytown, will teach the judging of swine, March 10 to 15. Mr. Berry has made the breeding of pure-bred Berkshire swine a specialty for sixteen years, and has also bred Poland-Chinas for the past five years. He originated the prize-winning Silver Tip strain of Berkshires and has exhibited and been among the most successful winners at the leading western fairs. In 1893, at the Kansas State fair, Mr. Berry won with hogs of his own breeding every first and second prize in class, herd prize and championships on both boar and sow against strong competition. He has sold hogs in twelve states and territories and in seventy-five counties in Kansas. Mr. Berry has acted as single judge of swine at the Texas and Kansas state fairs and at the territorial state fair, Oklahoma, and as one of the judges at the expositions of Kansas City, St. Joseph, Atchison, Ottawa, and other large fairs. Mr. Berry was twice president and twice secretary of the Kansas State Swine Breeders' Association,

and conducted score-card practice for this association at many of their meetings.

J. W. Robison, El Dorado, will give instruction in judging draft and driving horses, March 17 to 24. Mr. Robison has the largest herd of pure-bred Percheron horses in the State, and also breeds standard trotting horses. He owns a large number of grade Percherons and has bred and handled French Coach and Clydesdale horses. His horses have been very successful in winning prizes at leading Kansas fairs. Mr. Robison recently spent the summer in the great horse-breeding sections of France and made a choice importation of Percherons. While in Europe he thoroughly studied the breeding, feeding and handling of horses as carried on in France and in England and he has made careful study of the demands of horse breeders and buyers in leading American markets. Besides his extensive horse interests, Mr. Robison owns and manages farms aggregating sixteen thousand acres. His cornfields cover twelve hundred acres, his alfalfa fields one thousand acres, and other crops in proportion. He has twelve large orchards, fifteen hundred cattle, and hundreds of hogs. Mr. Robison has been president of the Kansas State Stock Breeders' Association, vice-president of the Kansas State Horticultural Society, and is president of the Kansas Stock Shippers' Association.

It will be worth all the cost of taking the entire short-course work to become acquainted with these experts and learn how they are carrying on their successful work. The regular teaching force of the Dairy and Farm Departments of the College will take part in teaching stock judging, and many of the leading stock breeders of the State have promised to come and take the work. Students will have the opportunity of learning from these men as well as from the instructors.

During the week of judging dairy cattle the State Dairy Association will meet at the College, and this will bring the best dairy talent from both in and outside of the State. H. M. COTTRELL.

The following item from the *Manhattan Republic* ought to make Professor Mayo feel good: "The Veterinary Department at the College is sending out a daily average of fifteen hundred doses of blackleg vaccine. Score one for Dr. Mayo. He's the right man in the right place and Kansas farmers know where to apply for scientific assistance."

THEIR PEDIGREES.

ON ANOTHER page the readers of the INDUSTRIALIST will find an account of the purchase by the College of a span of fine mares, bought for breeding purposes. Horsemen will be greatly interested in the pedigrees of these superb Percheron mares.

KEOTA BRILLANTE 17155.

[Recorded in the Percheron Stud-Book of America.]

Black; star. Foaled, June, 1892; bred by Singmaster & Bro., Keota, Iowa; got by Francillon 9842 (10428), by Cheri 5079 (2423), by Bayard, belonging to M. Caget; by Duke de Chartres 162 (721), by Coco 2d (714), by Vieux-Chaslin (713), by Coco (712), by Mignon (715), by Jean-Le-Blanc (739). Dam, Daisy 9817 (13989), by Montgador (464), by Favori (12874), by Brilliant 1899 (756), by Coco 2d (714); 2d dam Rosette (13988), by Madere.

KEOTA FLORA 18884.

[Recorded in the Percheron Stud-Book of America.]

Black; star. Foaled, August, 1894; bred by Singmaster & Bro., Keota, Iowa; got by Duc Doudauville 2d 11695 (12685), by King of Perche 4975 (6738), by Cheri (6441), by Favori 666 (725), by Favori 1st (711), by Vieux-Chaslin (713), by Coco (712), by Mignon (715), by Jean-Le-Blanc (739). Dam, Keota Queen 14883 by Romer 7596 (7471), by Cheri (5464).

The committee on farmers' institutes have made definite arrangements for nineteen additional farmers' institutes, as follows:

| | | |
|-----------------|--------------------------|------------------------------------|
| Nov. 19 | Talmage | Professors Otis and Dickens. |
| " 20 | Glen Elder | Professors Otis and Dickens. |
| " 21 | Jewell | Professors Otis and Dickens. |
| " 23 | Meriden | Professor Otis and Miss Minis. |
| " 30 | Rose Hill | Professors Walters and Otis. |
| Dec. 2 | Mulvane | Professors Walters and Otis. |
| " 3 | Peck | Professors Walters and Otis. |
| " 4 | Viola | Professors Walters and Otis. |
| " 5 | Conway Springs | Professors Walters and Otis. |
| " 5, 6 | Hackney | Professors Cottrell and Mayo. |
| " 5, 6 | Burton | Mrs. Calvin and Professor Dickens. |
| " 6 | Belmont | Professors Walters and Otis. |
| " 7 | Turon | Professors Walters and Otis. |
| " 9 | Hazelton | Professors Willard and Otis. |
| " 10 | Attica | Professors Willard and Otis. |
| " 11 | Harper | Professors Willard and Otis. |
| " 12 | Anthony | Professors Willard and Otis. |
| " 13 | Argonia | Professors Willard and Otis. |
| " 14 | Milan | Professors Willard and Otis. |

THE INDUSTRIALIST.

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PROF. J. T. WILLARD.....Alumni Editor

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LOCAL NOTES.

Professor Hitchcock is reported to be convalescing.

The Military Department needs more guns and accouterments.

The fall term will close on Friday, December 20, and the winter term will begin on January 7.

The sales of the Coöperative bookstore for the first two months of the term amount to \$1,300.03.

Postgraduate C. A. Scott, '01, left November 9, for Washington, D. C., where he will accept a position in the United States department of agriculture.

The freshman botany class has commenced work in the ecological and physiological portion of the text.

Professor Walters will deliver a lecture in the high-school lecture course of LeRoy, Coffey county, on November 29.

The K. S. A. C. football team was defeated November 9 by the Normal and on November 11 by the College of Emporia.

The Botanical Department has recently sent some of its select Turkey wheat to the Nebraska Experiment Station, at the request of Prof. T. L. Lyon.

The students in plant histology are enjoying the use of a new microtome, a paraffin imbedding oven of recent type, and other interesting accessories.

Prof. E. A. McIntyre took her class in Domestic Science down to the Manhattan mill one afternoon last week to see how wheat was transformed into flour.

One of the recent purchases of the Botanical Department is a Bausch & Lomb portable microscope, a most admirable and necessary adjunct to a field biological equipment.

The John Thomas Concert Company was the first attraction of the College lecture course and the chapel was crowded Tuesday night. Mr. Thomas is a humorist of rare ability and the company is one of rare merit.

Messrs. Wood and Spalding, the firm of grocers in whose store the extraordinary sweet potato with the duck-like form has been exhibited, have donated the vegetable wonder to the Botanical Department to be placed in the museum.

Last Friday we had a chance to visit the greenhouse of Mr. Farman, who lives directly north of the city, and saw there a large and fine exhibition of chrysanthemums.

The following young women left for the Y. W. C. A. convention at Ottawa last Thursday morning, as delegates from this College: Emma Smith, Viola Norton, Mabel Howell, Winifred Johnson, Maude Coe, and Edith Hilton. The session will last four days.

The Presbyterian excursion to Fort Riley Monday, November 11, was a big success. Many students joined in the picnic. There were five hundred eighty-seven tickets sold and it took a special train of twelve coaches and a baggage car to transport the happy crowd.

The new chemical engine and the hose cart have received a permanent habitation this week. Two neat stalls were built for them at the northwest corner of the Main building. The sheds are covered with tin roofing and are as modest and becoming as such structures can be made to look.

Professor Roberts is considering the purchase of a small combination thresher separator and cleaner for use next spring. The cross-bred and selected wheat can then be satisfactorily handled and the numerous small lots now threshed by hand can be worked through rapidly and economically.

Instructor Josephine C. Harper, of the Mathematical Department, was honored last week by Lindsborg College with the degree of Art Master. The honor falls upon most worthy shoulders; it is a credit to the college that bestowed it, to the recipient, and to this institution, where she has been an efficient instructor for many years.

The news comes from Washington, D. C., that the Association of Experiment Stations and Agricultural Colleges in annual convention decided to establish at Columbus, O., a summer school for the study of agriculture, agronomy, zoötechny, and dairying. Dr. A. C. True, the head officer of the experiment stations of the department of agriculture, will be director of the new institution. The Ohio State University will furnish the buildings and equipment. The plan adopted is for graduate students, instructors and investigators.

The Faculty has ordered that during Thanksgiving week the work of instruction be moved forward one day so that the work of instruction will begin on Monday morning instead of Tuesday morning. Gaining one day of class-room work by this arrangement, it has declared a vacation for Friday and Saturday. This will give the many students who wish to go home and eat turkey or replenish their larder at the paternal warehouse a vacation that might be stretched from Wednesday evening to next Monday evening. The students, however, who intend to remain at Manhattan will find the College library open every day and plenty of other work ready for them in the other departments.

Along with the rain and the mud comes the cry for more lights along the streets leading to the College. The town has been very good in building the new brick walk, and if only three or four arc lights were put in proper places along the streets mostly traveled, the joy and gratitude of the student, who has to blindly feel his way home from society (or otherwise), would be overflowing. If all the students and members of the Faculty would pound along this line at every opportunity we have no doubt that the city would comply with the request.—*Students' Herald*.

A telegram arrived on Sunday morning, November 10, calling home the two Hodgson brothers, who were attending College here. Their father, H. C. Hodgson, who lives on a large farm in Rice county, telegraphed that he had lost his large barn by fire, sustaining a loss of about \$10,000. Besides the building, which was worth about \$4000, he also lost six horses, four cows, three thousand bushels of wheat, twenty thousand gallons of cider, two hundred tons of alfalfa hay, \$1500 worth of farm machinery, a \$400 cider press, and his old dwelling. The insurance is only \$1000. We hope the loss may not debar the young men from returning.

Regents McDowell and Satterthwaite have purchased for the College, of Singmaster & Sons, Keota, Iowa, two pure-bred Percheron mares—Keota Brillante 17155 and Keota Flora 18884. The mares are jet black in color, models in form, and carry the blood of many of the greatest prize winners of France. They weigh nearly 2000 pounds each, are valued at two thousand dollars, and make what is probably the best team of draft horses west of the Missouri river. They were the choice out of two hundred fifty carefully selected pure-bred Percheron mares. These are the first good horses owned by the College and make the beginning of what it is hoped will soon become a herd containing good representatives of all the leading breeds of draft and driving horses.

We draw the attention of all progressive farmers of the State, young and old, to the fact that this College will give a short course for farmers this winter, from January 7 to March 28, 1902. This short course is designed for those farmers and farmers' boys who cannot spare the time and money to take our regular four-year course. The time required for the farmers' short course is two winters, twelve weeks each, coming at a time of year when men on farms can best leave their work. Instruction is given in crop production, feeding and breeding, orcharding, gardening, and farm shop work. Diseases of farm animals, the study of bacteria and insects, botany, chemistry and physics are treated from a strictly practical standpoint. The aim of the course is to give instruction which will enable the student to grow larger and better crops, increase the fertility of the soil while taking paying crops from it, secure cheaper and greater gains in feeding, maintain the health of the animals on the farm, improve the quality of all the products of the farm, and market them to the best advantage. Send for a descriptive bulletin.

KANSAS STATE AGRICULTURAL COLLEGE

DAIRY SCHOOL.

JANUARY 7 TO MARCH 28, 1902.

Designed for Farmers, Private Dairy-men, Creamery Butter Makers, Cheese Makers and Skimming-Station Operators.

WHAT STUDENTS SAY:

F. H. McIntosh, Alta Vista, Kan.: "After I completed my dairy course I accepted a position as station operator at \$10 per month better salary than I received before taking this course. I cannot speak too highly of this course to those who wish to take up dairy or creamery work."

M. H. Matts, Homewood, Kan.: "I hardly know how to express my appreciation of what the dairy short course has done for me, and I would say to every prospective student who is alive to dairy work, attend the Kansas dairy school at any expense and you will never regret it."

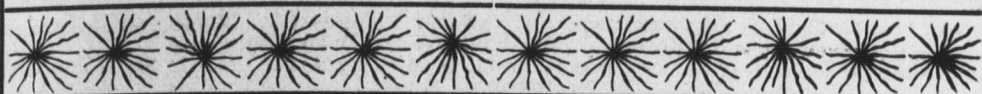
J. E. Baumbaugh, Rye, Colo.: "Whatever success I have had or may have in the dairy business, I feel that it is due largely to my three months spent at the College taking the short dairy course."

S. B. Pray, White City, Kan.: "I never used time and money to better advantage than that which I spent in attending the dairy short course at the State Agricultural College."

Geo. P. Stubbs, Rock, Kan.: "I would not take any amount of money for what I learned at the Kansas dairy school of 1901."

Write, and get your friends to write, for a short-course catalogue. Address,

Pres. E. R. Nichols, : - Manhattan, Kan.



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AGRICULTURAL COLLEGE

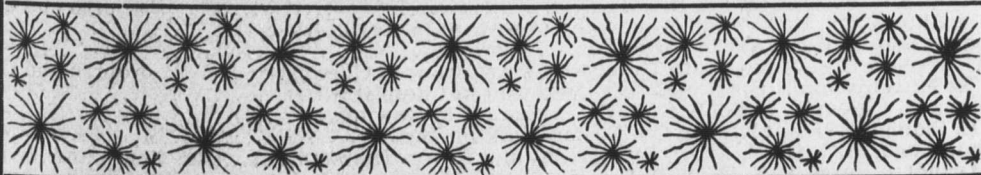


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THE WHISKY INSURRECTION OF 1794.

TWO sides are to all questions. Sometimes much is said of one, little of the other. Some questions are many sided, and some parts are kept apparently in abeyance. Whether designedly or not does not necessarily enter into the matter. How many historical questions are discussed unbiased one cannot tell, but certain it is, some questions seem not to have been fairly treated. This last statement applies very forcibly to the treatment which the so-called Whisky Insurrection of western Pennsylvania has received at the hands of many historians.

In his preface to "The Latimers" the author says, in substance, that he does not believe the people of the United States to this day understand the conditions as they were at that time. That story of western Pennsylvania life, in the judgment of the writer, more nearly relates the facts as they were than any modern historian of whom he has knowledge. The fault of some historians is not so much in what they tell as in the omissions which tend to give a wrong impression. Others tell so few things, and only on one side, that they seem almost intentionally to misrepresent.

Modern public speakers, in their extreme notions, refer to the whisky rebellion as an example of how depraved men become in their desire for the accursed thing. Such do not know, or wilfully distort the facts. Ignorance is perhaps the true explanation.

The object of this article is not to excuse wrong-doing nor palliate violation of the law; only an effort to ascertain as far as possible the facts. All law should be enforced, but the enforcement of law may be had in such an offensive manner as to destroy all respect both for the law and those whose duty it is to enforce the same.

The so-called "Rebellion" or "Insurrection," for it has received each name, occurred in the counties of Washington, Fayette, Alleghany, and Westmoreland, Pennsylvania, in 1794. These counties at that time contained a large number of Scotch-

Irish Presbyterians, a people self-reliant, honest, upright, persistent in what they believed to be right, and, like their ancestors, disliked an excise tax and hated an exciseman. An English writer upon law says, that since the beginning of such a tax the name exciseman has been "odious" to English people, and another writer defined it as a "hateful tax," adjudged and collected "by wretches hired" for that purpose. Settling in this region they were compelled to rely upon their own exertions for a livelihood and for protection. Many of them had opposed excise laws in the country from which they came, some had fought through the entire Revolutionary war in favor of independence, and did not see why, after achieving independence, they should be subjected to the same distasteful laws they had before opposed.

Soon after the organization of the government the United States assumed many of the obligations of the states. In order to raise revenue to meet its necessities, among other things an excise law was proposed by Alexander Hamilton. The Constitution plainly gives Congress this right. The first efforts by Congress to pass an excise law were defeated in June, 1790. When, in 1791, the project was revived, the legislature of Pennsylvania instructed their senators to oppose such a law as "established on principles subversive of peace, liberty, and the rights of citizens." Besides the legislature, some of the leading towns of the state, including Philadelphia and Lancaster, sent to Congress remonstrances against duties on distilled spirits. The excise bill became a law in March, 1791, but its passage was bitterly fought at every step.

The people of the counties before mentioned anticipated hardships from the law, since they had little or no money, no means of procuring it, consumed much of the whisky in their own families or used it for bartering purposes, yet could not pay the excise with it. No public meeting was held to consider the law until July, 1791. This meeting resolved to petition Congress for relief. Hamilton afterwards cited this meeting as one of the causes of calling out an army, though it met only to petition, and this it had an undoubted right to do. Another meeting in August was not so politic, and violence was afterwards resorted to against a revenue officer. In May, 1792, the President was empowered to use the militia to suppress disturbances. Six days afterwards another act reduced the duties. The brief records of the Annals

of Congress show much feeling and bitterness among the members on the subject of excise, and especially in its application to this section.

General Neville was inspector of revenue for this district. He was a member of the Pennsylvania legislature at the time of the passage of instructions to senators before mentioned, voted for the instructions, and while a member was as much opposed to an excise as any of the other members or any of his neighbors. He was reputed the richest man in that section, and having previously been opposed to excise laws, his neighbors thought his acceptance of the office a gratuitous insult to them, and that he accepted only for the money that was in it, and by so doing became one who aided in injuring his neighbors financially.

Not much tax was collected nor was there much disturbance until July. 1794. In this month the United States marshal came and served, without insult, opposition or intimidation, thirty-nine out of forty writs against delinquent distillers. These writs were returnable in Philadelphia. He passed the house of the fortieth, but did not serve the writ until the next day, when he returned with Inspector Neville, who piloted him to the house of this one, a neighbor to Neville. The arrest of this man meant his financial ruin. The inspector and marshal, on their way back, were followed by some persons, one of whom fired a shot, but without effect. It was not likely it was intended to hit, for these men were marksmen and could hit a squirrel's or turkey's head at will, and they seldom left home without a gun. The inspector went to his home, about seven miles from Pittsburg, the marshal to the town. This occurrence took place in harvest time. Then and for many year thereafter, there and elsewhere, whisky was used in the field where the sickle was employed to reap the grain. Perhaps the time of the year, with the additional excitement caused by the use of whisky, accounts for what followed. It happened on this same day that the Mingo Greek Regiment met, not far from the scene of the occurrence just mentioned, to form a select corps of militia as their quota required by recent act of Congress. Just before separating they learned of the inspector's being with the marshal. The next morning about thirty-six persons, most of whom had been at the meeting of the militia, went to the house of Neville. Being asked what their business was, and their answer not being satisfactory, they were

fired upon from the house of the inspector and from the quarters of his negroes. Six were wounded, one of them mortally. They retired. No harm was done the inspector nor his family. The inspector had a right to defend his house. Whether his method was the proper one may be questioned. Blood had been spilled; it was not in the nature of things that matters should stop. It was proved in the circuit court that the inspector made the attack before any violence was offered by the party. He doubtless imagined that an attack was intended, though none was offered. The wounding of so many tended only to inflame a people already in resentment against the double dealing of Neville. On the next morning, July 17, about five hundred men, mostly armed, met at Couch's fort, not far from the inspector's house. While deliberating what to do, a venerable clergyman expostulated with them and advised they return home. But the events of the previous day hurried them on. They went to the inspector's house. A committee of three was selected to supervise matters, and the orders were to demand and obtain the inspector's commission and papers but to offer no violence to his person, family, or property. There was precedent prior to the revolution for such demands in the case of stamp excise. On approaching the house a flag was sent from the committee demanding that the inspector deliver up his papers. Answer being returned that the inspector was not there, a second flag was sent with the demand that six persons be admitted to search the house. This was refused. A third flag was sent requesting that the females of the house withdraw. This they did, and then firing commenced. There seems to be no evidence as to which party fired first. A few minutes afterwards "a call was heard from the house" (Findley), "a flag was presented from the house" (Brackenridge), when the firing ceased. Whereupon the one having temporary charge of affairs stepped from behind a tree and commanding the men to cease firing was shot by some one from the inspector's house. It is plain in either case he was shot under a flag of truce or under a dishonorable feint intended to deceive. The one killed had fought, during the entire Revolutionary war, against Great Britain. His companions said and believed that the inspector's brother-in-law deliberately murdered him. His death only excited the remainder to further acts. Some one set on fire the barn, which was consumed, together with the house. The inspector's

brother-in-law and others who were there were obliged to surrender, and although it was believed the leader was murdered they sent away the surrendered, offering them no violence.

It is evident from the contemporaneous accounts that the attacks were against Neville and not against the government. Those who aided Neville were United States soldiers. The writer has been unable to find any evidence of any intention on the part of the so-called insurgents to resist the government. The cases heretofore cited of the peaceable serving of thirty-nine out of forty writs is conclusive; but the coming of Neville with the marshal for the fortieth, and that one Neville's neighbor, precipitated the trouble.

The people in that section then had no market for their grain unless reduced to whisky and transported on horseback, sixteen gallons to the horse, for there were no wagon roads through the mountain passes. After paying the tax it took so much to pay the expenses of transportation there was little or no profit left. And if one, because of the scarcity of money, became a delinquent, he must be taken for trial to Philadelphia, three hundred miles distant. Most of the farms were worth from three hundred to one thousand dollars, and a trial in Philadelphia meant bankruptcy, financial ruin, loss of home, the turning of wife and children and aged fathers and mothers out of doors. With such elements involved, these cases are very different from one of mere opposition to an excise tax. One of the complaints made in the Declaration of Independence was the carrying of citizens long distances for trial, and many of these men had fought against such tyranny.

The act requiring parties to be taken to Philadelphia was repealed June 5, 1794, but the writs before mentioned were issued in May of that year and made returnable in that city. Shortly after the events named, an irresponsible person robbed the mail for the purpose of finding what fellow citizens were opposed to them. For this there was no excuse. As a result of the foregoing troubles a mass meeting was called at Braddock's field for August 1. It is said seven thousand armed men came to this meeting, so several historians say. Stevens says, "The entire male population of sixteen years of age and upwards of the four counties did not exceed sixteen thousand and was scattered over a wide and unsettled country." Findley, who was an eye witness,

says, "It is not probable that their number was near so great. Many of those who did attend were without arms. The greatest number was from Washington county." (See further on as to the population of Washington and other counties.) Gallatin estimated the whole body to be between fifteen hundred and two thousand.

Before this meeting Secretary Hamilton had matured plans for suppressing the troubles. When the question of the use of force came before the cabinet, Randolph, Secretary of State, opposed it in a written opinion. In this he says: "It is a fact well known that parties in the United States are highly inflamed against each other, and that there is, but one character which keeps both in awe. As soon as the sword shall be drawn, who shall be able to restrain them."

August 7 the President issued a proclamation ordering the insurgents to disperse, and a requisition was made for fifteen thousand militia; a joint commission of five was appointed, three by the President, two on the part of Pennsylvania. In the meantime a delegate meeting of the people was held at Parkinson Ferry, August 14. Nearly half of these delegates came from Washington county. Albert Gallatin, afterwards so prominent in our history, was secretary. At this time came the commissioners with power to restore order. A committee was appointed to confer with the commissioners. On the first consultation the committee with one exception "agreed that the interests of the country, and their duty as citizens rendered submission necessary and proper." Terms of submission were agreed upon later. The substance of the agreement was, that the people would submit to the laws and in no way oppose their execution. Individuals could subscribe to the agreement in town or district meetings. Many refused to sign because, they said, they had never violated any law and had never opposed the execution of the excise law. Only six days were allowed from the printing of the terms for the signing of the test throughout a section of country thinly settled and said to have had seventy thousand people. The whole county of Fayette, by delegate convention assembled, agreed to obey the laws. When the army came one prisoner was taken from Fayette and he was found innocent—not having been in the state at the time of the riots. September 25, the President issued a new proclamation giving notice of the coming of the army. Washington went with the troops to Carlisle. October 2, a popular delegate convention was held at Parkinson

Ferry, and without opposition resolutions were passed in substance as follows: (1) That if the signature to submission was not general it was because time sufficient had not been allowed, or that the greatest number had not signed because they had never opposed the law, and to sign implied guilt. (2) This was an assurance of submission in the very terms of the commissioners. (3) Appointed Wm. Findley and David Reddick as commissioners to see the President and explain matters fully that he might judge of the necessity of sending an army. Findley was a member of Congress and remained there so long that he was known as the "father of the house."

These resolutions gave all the assurance required by the commissioners of the President and ought to have stopped the march of an army. Historians are ominously silent on the action of the convention, seemingly preferring to follow the reports of the government agents, who generally exaggerate irregular acts rather than follow the public acts of respectable citizens in public convention.

When Findley and Reddick reached Carlisle, where the army and Washington were, they found the army hostile to them because they sought peace. The delegates told the President the true condition of affairs and assured him that all opposition to the law had ceased, and all indications of riot had died out as rapidly as it had risen, and that the people had complied with the exact terms demanded by the commissioners he had sent. Hamilton was present at some of the interviews with the President. He refused to stop the army, and instead of going with it sent Hamilton.

Findley and Reddick hurried home to get further assurances of submission. At the fall meeting of the militia all present signed submission without hesitation. At a general meeting held October 24 the returned delegates recommended extreme caution on the part of the people, and not to oppose the army which was inflamed against them.

It seems very much as if the marching of the army at the urgent request of Alexander Hamilton had another purpose. Fifteen thousand militia from Pennsylvania, New Jersey, Maryland and Virginia were sent under command of General Lee. The material of the army was not all the same; not much discipline; but little subordination. A large portion from the vicinity of Philadelphia

were hired substitutes, actuated by the hope of plunder and the bounty held out as an inducement. The Pennsylvania and New Jersey troops soon manifested bitter enmity against the so-called insurgents and talked of killing or hanging them. A large proportion of the troops were ruffians greater than the worst of those engaged in the riots. The composition, the temper, the discipline of the men sent out were not suited to aid the civil magistrates in the performance of their duties. The New Jersey men murdered a man believed to have been drunk, and a Philadelphia horseman deliberately shot dead a sick boy trying to get away from the troop. And these men sent out to suppress the insurrection did these things long before the scene of expected action had been reached.

The special instructions of Washington to General Lee were, "To suppress the combinations which exist . . . in opposition to laws laying duties upon spirits . . . and to cause the laws to be executed." These objects could be effected by military force or by judiciary process. The army arrived in the western counties about November 1 and encamped near the Monongahela. Not a hand nor a voice was raised against it nor the government. Courts could have been organized in the counties to try offenses. Congress had passed an act authorizing such proceedings, but took no steps to carry the law into effect, although a district judge, a marshal and an attorney accompanied the army.

While the army was at Bedford, and before it reached the vicinity of Pittsburg, four persons were arrested, sent to Philadelphia, and put in prison without bail. After four months two were set free; the others having stood trial, the verdict was not guilty. Victims seemingly were wanted. General Lee issued an order for the arrest of certain persons engaged in certain eight acts specified in the order. Some of these acts had been approved by Washington in his interview with Findley and Reddick as proper, and he had requested the same body again to meet for the same purpose for which they had formerly met. Another was the *planting of liberty poles*. The night of November 13 was set for the arrest. There being no disturbance and the people thinking matters had been settled slept, as was their custom, quietly and peacefully at home. In the dead of night, without any warrant except the sword, hundreds of men were torn from their families, some for alleged offenses, some merely for witnesses. The Czar of Russia does no worse. "Men were thrown into jail, kept in cold barns

or out-houses, tied back to back in cellars." Some were driven like cattle, at a trot in muddy roads, impounded in wet stables, and their food, dough or raw meat, thrown into the manger. Some who signed the amnesty were arrested; some who had never committed any offense. Some were dragged from bed and obliged to march partly dressed, some without shoes, driven by the bayonet, kept for several days and compelled to sleep on the wet ground without covering, amid the rain, sleet, and snows, and when brought before the judiciary, discharged. One man subject to epilepsy was tied to a horse's tail and dragged along. Yet this man had served in the American army during the whole of the Revolutionary war. In the Mingo Creek settlement, which seemed to be very much opposed to the excise law, "The universal testimony is, that arrests were made in that region accompanied with circumstances of barbarity and terror seldom equaled."

When the Judiciary at Pittsburg made selections of those who were to be sent to Philadelphia for trial, the army returned home. Philadelphia was the seat of government, and McMaster well says, "It is little to the credit of the men of that day that eighteen of the prisoners were sent to Philadelphia and marched about the streets with the word 'insurgents' on their hats." And he might have added, that many of these had fought for the independence of the country. None were admitted to bail. One, proved at times to be subject to fits of insanity, was condemned to be hanged *for burning a house*, another *for robbing the mail*. Both were pardoned by the President. The others, after remaining in jail about a year, were discharged and left to find their way home as best they could.

In this so-called insurrection all the killing was done by the government troops or by those in the employ of the government. The expedition cost \$800,000, a sum greater than the revenue would have amounted to in twenty years. And if newspaper reports be true, there is more money lost each year, at this time, by illicit distilling in the state of Georgia than was lost in the same time by non-payment of taxes in the four counties mentioned, and no one thinks of sending an army to hunt for illicit or delinquent distillers.

There seems to have been other causes for the use of force. A careful reading of the Annals of Congress will throw not only

much light upon this subject but show the animus of the parties. The origin of the trouble was in a law believed to be unequal, unjust, and oppressive. Proof of this is in the fact that the first proposed bill failed to become a law and that in response to petitions and remonstrances frequent amendments and concessions were generally granted after such a law was passed. In Congress there was always a strong opposition to the law and in one instance it required the vote of the speaker to determine the matter. The immediate cause of the outbreak was the ill-timed action of the inspector and marshal in serving the one writ.

It is a well-known fact that Alexander Hamilton was not satisfied with the form of government; that he desired one having a strong centralized power. It is true, he cast his influence for the adoption of the Constitution, not because he liked it, but because he despaired of getting anything better. Jefferson had been in France during a part of the revolution and was influenced more or less thereby. He did not remain long in Washington's cabinet. Other men followed largely Jefferson's views of the powers and duties of government. Parties began to form. The people of western Pennsylvania sided largely with Jefferson, and it was charged that Hamilton's urgent request for troops was as much for the suppressing of the political party opposed to him as for the execution of the law. Hamilton accompanied the troops and took part in judicial inquiries as to what individuals should be prosecuted. Yet his office as secretary gave him no authority whatever. His attempt to involve Findley, member of Congress, Smilie, who was afterwards a member, Brackenridge, a candidate for Congress, and Gallatin, later a United States senator and the second famous secretary of the treasury, seems to lend truth to the charge that he wanted to suppress a political party as much as he desired to suppress an insurrection. There is no evidence that either of the four distinguished men took any part except to allay excitement and to urge the people to obey the law.

While these things were in progress, Wayne's victory over the Indians rendered the passage of the Ohio river comparatively safe and opened up a new market for the products of the section, money became easier, and no more trouble was experienced. A later effort to suppress freedom of action and of speech culminated in the alien and sedition laws. These resulted in the overthrow of the party in power and the excise law was repealed.

The right to enforce the laws is not denied. All law, while it is law, should be enforced. But in the foregoing instance the necessity of employing such a force is doubted and the manner of enforcing it by the troops seems wholly inexcusable. Had Washington, not Hamilton, accompanied the troops, such things would not have occurred, and obloquy and infamy would not have been heaped upon those who were more sinned against than they sinned.

Some inquiry might be made as to the 7000 armed men said to have been at Braddock's Field and the 70,000 inhabitants of the four counties at that time. The above figures may be correct. The writer has no definite statistics for the year 1794. But some doubt may arise from the fact that Pittsburg was in the hands of the French until 1755, and the surrounding section was under their control. In 1820 these four counties had only 90,413 population. This is twenty-six years after the insurrection; while in the same year Washington county, the hot-bed of the insurrection, had only 4915. Westmoreland, in 1820, had 30,540 population. From this county twenty-six years before only two persons had been arrested; one was discharged and the other, subject to insanity, had burned a house. One, proved to be absent, was arrested in Fayette county whose population in 1820 was 27,280. Pittsburg had, in 1796, a population of 1395, and the question very naturally arises, Whence came the 7000 armed men? Are they largely a myth; did they increase like Falstaff's men in buckram? The historian may have told the truth, but who will vouch that he did?

The authorities for the preparation of this article are Findley, Brackenridge, Annals of Congress, Hinton, Stevens, Schouler, McMaster (by far the best account of any of the modern historians), and Bryant, the least reliable of all, so inaccurate that he does not even spell correctly the name of one he designates leader.

B. S. MCFARLAND.

Lieutenant Cavanaugh, '96, writes an interesting letter to Doctor Mayo from Loboo, Batanzas Province, under date of September 2. He says he is well but not as happy as he expects to be when he leaves his present station in the island. He describes it as surrounded on three sides by mountains and on the fourth by a swampy mile. No telegraph nor telephone, a boat once a month, government straight rations. He hopes to leave with his regiment, the Twentieth Infantry, for the States soon.—*Herald*.

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LOCAL NOTES.

The chrysanthemums in the greenhouse are at their best.

The Horticultural Department is sending out some very fine celery.

The Board of Regents will be in session during the second week in December.

The Burlington Creamery Company writes to the College for a good butter maker.

The first-year students enjoyed a delightful party in Agricultural Hall last Monday evening.

The iron shops are boring a fly-wheel for a threader for J. E. Holm, of Olsburg, Pottawatomie county.

Assistant Margaret Minis, of the library, has been ill for several days but is now at her post again.

Prof. H. M. Cottrell left Monday for Champaign, Ill., to attend the meeting of the Illinois Stock Breeders' Association.

The second number of the College lecture course was given last Friday night in College chapel. It consisted of a lecture by Byron King and was well received.

The second-year short-course girls gave a most delightful reception to the first-year short-course girls last Thursday afternoon in Domestic Science Hall.

Professor Walters will read a paper pertaining to the history of the Kansas State Agricultural College before the annual session of the State Historical Society, at Topeka, next January.

And still the good work is going on. Hon. T. A. Hubbard, president of the Kansas State Board of Agriculture, writes for assistance at five farmers' institutes, to be held in his county.

A new lathe for the iron shops arrived Monday from the American Tool Works, Cincinnati, Ohio. Its weight is about five tons. Its length is twenty-one feet with a twenty-eight-inch swing. The cost is \$1000.

Mrs. Eva Gill-Clark, teacher at K. S. A. C. '97-'98, was in town between trains Saturday. Mrs. Clark is principal of the Waterville schools, where Miss Josephine Berry is superintendent. Miss Hazel Berry is teaching in the Beattie town school.

A traveling photographer took a picture of the students and the Faculty—all who could be gathered in front of the Main building after chapel exercises on Saturday. The picture will contain some eight hundred or more bright faces and not a single dull one.

Mr. H. N. Ott, travelling agent for Bausch & Lomb in the Mississippi valley region, was visiting the College Wednesday in the interest of his firm. He reports tremendous activity at the great factory of the concern. Men are working day and night to fill orders.

Prof. J. D. Walters is booked in the lecture course of the LeRoy high school and will appear there Friday evening the 29th. We are confident the LeRoy people will hear something good as Professor Walters is an interesting, clever and entertaining speaker. — *Manhattan Republic*.

The Biological Society had a good meeting on Saturday afternoon after chapel. A paper was read by F. E. Balmar entitled, "Vegetation in Western Texas." Professor Popenoe discussed the "Life and Habits of Aquatic Insects," and President Thompson spoke on the history of several varieties of grapes.

President and Mrs. Nichols and Prof. J. T. Willard returned Tuesday from Washington, D. C., where they attended the fifteenth annual convention of the American Agricultural Colleges and Experiment Stations. The public buildings of Washington and the Johns Hopkins University at Baltimore were places of interest visited.

Prof. Wilford Clure will give an evening of readings from the best authors, at the opera-house, on Monday evening, December 9. The program will be made up of selections from Riley, Field, Kipling, Browning, and others, combining to give variety in style and subject-matter. Mr. Clure will be assisted by Miss Eleanor Harris, pianist, Miss Edith Huntress, vocalist, and the K. S. A. C. Mandolin Club. This is Professor Clure's first appearance in Manhattan as a reader, and everyone should hear him.

ALUMNI AND FORMER STUDENTS.

Miss Effie E. Bailey, '00, was married November 6 to Mr. D. A. Foltz, of Zeandale.

R. S. Kellogg, '96, has resigned his position in the Division of Forestry to return home on account of the continued illness of his mother.

The third pair of twins has been added to the grandchildren of the institution. Fred Hulse, '93, and Carrie Johnson Hulse, student in 1895, are the happy parents.

Chas. A. Scott, '01, is again in the employ of the Division of Forestry of the Department of Agriculture. He is working up field notes taken during the summer.

The *Herald* announces the birth of a son to J. V. Patten, '95, and Hortensia Harman Patten, '95. Also the birth of a daughter to D. T. Davies, '95, and Flora Allingham Davies.

The Experiment Station library is indebted to Ex-Supt. Geo. F. Thompson for a complete set, bound, of the series of Farmers' Bulletins issued by the U. S. Department of Agriculture.

Frank D. Tomson, of the Iowa *Homestead*, has much to be thankful for. He is a son-in-law of Sec. F. D. Coburn, an old Kansas Agricultural College boy, a son of T. K. Tomson, the Short-horn breeder of Dover, has a good job and a mighty fine baby. Some folks want the moon, too.—*Kansas Farmer*.

Sunday morning at nine o'clock occurred a quiet though very pretty home wedding, uniting in marriage Miss Delpha M. Hoop ['91] and Dr. J. Carroll Montgomery. Only the members of the family and the most intimate friends witnessed the ceremony. The bride, who is a daughter of Mr. and Mrs. S. Hoop, grew to womanhood in Manhattan and has been one of our most successful city school-teachers. The groom is a promising young physician. Mr. and Mrs. Montgomery left in the afternoon for Tampa, Kan., where they will make their future home. The best wishes of many friends go with them.—*Nationalist*.

FARMERS' SHORT COURSE
KANSAS STATE AGRICULTURAL COLLEGE
 JANUARY 7 TO MARCH 28, 1902

INSTRUCTION IN

♦ ♦

Crop Production
Stock Feeding
Stock Breeding
Stock Judging
Diseases of Farm Animals
Orcharding
Gardening
Blacksmithing
Carpentry

Special Feature, the Judging School.

Judging Poultry, Beef and Dairy Cattle, Swine and Horses.

JUDGING POULTRY.—February 17 to 22, C. H. Rhodes, of Topeka, will give instruction in scoring and judging poultry. He will give lectures on the characteristics of the different breeds of poultry, the standard requirements and the application of the score-card.

A number of breeds of poultry are represented on the College farm and Manhattan fanciers will loan all the birds needed for thorough work in scoring.

Mr Rhodes will act as judge this season at leading poultry exhibitions in Kansas, Colorado, Missouri, Nebraska and Oklahoma, and for the fourth time as judge for the Kansas State Poultry Association. He has successfully bred nine varieties of chickens.

Every farmer, farmer's wife and daughter in your community is interested in poultry and would find this work profitable. **Let Them Know About It.**

For full particulars, address
Pres. E. R. Nichols, - - Manhattan, Kan.

Volume 28.

Number 10.

THE INDUSTRIALIST

ISSUED WEEKLY BY

KANSAS STATE
AGRICULTURAL COLLEGE

☆ ☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

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MANHATTAN, KAN., DECEMBER 3, 1901.

No. 10

THE FIFTEENTH ANNUAL CONVENTION OF THE ASSOCIATION OF AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

ON MAY 6, 1885, Norman J. Colman, commissioner of agriculture, issued a circular suggesting that each agricultural college or experiment station send one or more delegates to a meeting to be held at the department of agriculture. The commissioner assigned as his motive a recognition of "the importance of a closer and more intimate association of the different agricultural colleges and other industrial and educational institutions" with the department of agriculture. Among other things he said: "There are many ways in which the department and the industrial colleges can coöperate to their mutual benefit, and such a convention, it seems to me, cannot fail to be productive of great good. The question of familiarizing our people as a whole with some of the fundamental truths of agriculture by teaching these in the public schools; the question of agricultural experiment stations and the relation they should hold to the department; the best means of bringing about congressional action and of harmonizing the interests of the different state institutions and the National department, and many other cognate questions will suggest themselves." At this convention much good was accomplished and the way prepared for greater things.

In 1887 a permanent organization was effected under the name, Association of American Agricultural Colleges and Experiment Stations. This association is thus not one of individuals, but of institutions, one delegate being allowed to each of the land-grant colleges, and to each experiment station participating in the federal appropriations made under the provisions of the Hatch act. In connection with one of the discussions which took place in the recent conventions, President Atherton, of Pennsylvania State College, made a brief statement concerning the original purpose of the organization. The Hatch act, providing for the appropriation of fifteen thousand dollars annually for each state, for the

maintenance of agricultural experiment stations, had just been passed. This appropriation carried with it a great responsibility, that of the proper expenditure of funds, and it was felt that there was danger that in some cases this responsibility might not be met with a sufficient degree of wisdom. Since each congress must be appealed to for the appropriation which the act allows, it was evident that improper use of the funds by some of the states would jeopardize the interests of all. It was hoped that the discussions of the various questions touching the experiment stations, and their relation to the several colleges, at these annual meetings would serve to bring about greater efficiency in their work and a more faithful administration of the funds appropriated.

The association gives much attention to the work of the colleges as well as that of the experiment stations. Part of the sessions each day include all of the delegates and visitors, but for the remainder of the time they meet in sections for the reading of papers and for discussions upon the more specific lines. There are sections upon college work, agriculture and chemistry, horticulture, entomology, and mechanics. As two or more of these sections may be in session at once, it is impossible for a delegate to attend all of the meetings held during the convention.

It is obvious that this organization, in addition to being a most valuable agency in advancing the interests of industrial education and agricultural experimentation, is a powerful guardian of the legislative interests of the institutions of which it consists. The most important work which it has done in this capacity is its contribution to the influences that resulted in the passage of the Morrill act of 1890, by which provision was made for appropriations to the land-grant colleges to supplement their receipts on account of the original endowments. This gave each institution fifteen thousand dollars in 1890, and an amount each year thereafter one thousand dollars larger than the preceding year until the amount reached twenty-five thousand dollars per annum, where it now remains. Each state now receives, therefore, forty thousand dollars from the federal government, the expenditure of which must be within certain lines designated. These funds are obtained by the sale of public lands. It is obvious that the welfare of these institutions is now very closely linked with current federal legislation, and the guardianship of these interests must

always be a large part of the work of the association. It is also apparent how strong is the pressure brought to bear upon any institution which may be suspected of attempting to use the federal funds for purposes not contemplated in the several acts providing for their appropriation. That this pressure is very real upon all in attendance upon these conventions is apparent from the discussions. The original act of 1862 is really very broad in its provisions, but the general trend of opinion, as far as expressed, seemed to be in favor of rather close restriction of the use of the income fund to clearly industrial lines.

Some of the most valuable discussions at the recent convention grew out of the breadth of scope that the original act provided for these colleges and the greater or less differences in the opinions of the speakers concerning the relative importance of the several lines of work of the institutions. A strong effort was made to change the name of the association, so that the agricultural feature of these colleges should not seem to be singled out for designation in the name, when "the mechanic arts" are mentioned with equal prominence in the land-grant act, and a "liberal" as well as "practical" education is to be provided for the "industrial classes." After a long debate the name was left unchanged, probably largely because of the difficulty of briefly including all that it would be desirable to have in the name.

Growing out of similar considerations was a proposition to amend the constitution of the association in such a way as to provide for a delegate from each institution to represent the department of mechanic arts. This proposition was supported chiefly by President Patterson, of Kentucky State College, who read a very able address in its advocacy. President Patterson gave utterance to a feeling which seems to be very general among the college and university presidents, viz., that they are meeting with very little success in drawing students into the regular courses in agriculture, notwithstanding that they have spared no pains in providing the finest equipment and skilled instructors. The paper did not attempt to account for this, but merely stated and deplored the facts, and at the same time it testified to the constantly increasing popularity of the engineering courses. President Patterson argued that in the provision for delegates to the convention the institution as a whole, including the experiment station, which by law is a department of the institution, was rep-

resented by the president, and then that the anomaly was introduced of allowing the agricultural department a delegate of its own through the experiment station. He would not advocate righting the wrong by abandoning the anomaly, but favored offsetting it by allowing the department of mechanic arts a delegate also. He claimed this more especially because of the conspicuous failure that most institutions have experienced in getting students into the long courses in agriculture in contrast with the eagerness with which they avail themselves of the engineering courses. The convention could not, however, be brought to see that either justice or expediency required that an additional delegate should be allowed as proposed, and the amendment was defeated by a large majority.

The fact is, that the delegate from the experiment station is not there for the purpose of representing the agricultural department of the college—that is, the work of instruction in agriculture—but he represents a department the sole purpose of which is original investigation. This investigation is in the field of agriculture, it is true, but covers a much wider field than the instruction given under the head of agriculture does, since it includes not only agriculture proper but chemistry, physics, botany, entomology, bacteriology, etc., and even engineering, in their applications to the art of agriculture. The delegate from the experiment station represents this field of investigation, as distinguished from instruction, and his duty is to uphold conditions which will favor the proper expenditure of the fifteen thousand dollars provided by the federal government for investigations in agriculture. Should the government establish engineering experiment stations in connection with the land grant colleges, adequate protection of their interests might require that they be allowed delegates, and certainly a just recognition of their importance would dictate it.

That the interests of the experiment stations are distinct from those of the colleges for instruction, even though they are departments of those colleges, must be insisted upon constantly. An animated discussion touching this question took place during the convention. In most of the institutions the heads of the principal departments of instruction are also in charge of corresponding work in the experiment station. The same is true to a less extent of assistants in the departments. Men are employed who

receive part of their salaries from the college funds and the remainder from station funds, with the supposition that their energies will be equitably applied in the two fields. If the discussion in the convention may be safely taken as an index, this equitable division is a problem of great practical difficulty. Professors who are supposed to be directing investigations are asked to do nearly or quite as much teaching per day as those who are not, in many cases. The teacher gives the classes his best efforts, and his investigations are taken up with his faculties more or less exhausted by the strain of teaching. Some advocated the entire separation, if possible, of the experiment station force from that of instruction. Most of the speakers, however, considered that there is a real advantage in having the experiment station worker do some teaching. For one thing, he is enabled to present to his students the results of his investigations and to lead them into such work for themselves. Some teaching, too, is held to make him a broader and better man in his experimental work. The general opinion seemed to be that the head of a department in the experiment station should teach but one or two classes per day, and that sufficient assistance should be provided to handle the remainder of the teaching. Where the institution is large enough to allow it, the assistants in a department should, if practicable, not divide their time between college and station work; that is, if there are two assistants in a department, one of them should give his time entirely to station work and the other to college work. The great difficulty to be met in all cases where a man divides his efforts is, that however carefully matters may be adjusted in the beginning the college work is always increasing, and it is from this side that the most imperative pressure usually comes. If classes are to be met the next day, or the next hour, the necessary preparation for it will be made, and the experimental work will be postponed to a more convenient season, which in too many cases never comes.

Among the important announcements of the convention was that concerning a graduate school. The first steps looking to its establishment were taken last year, in connection with a proposition from Ohio State University. The details are still to be announced, but the general plan has been agreed upon. The school is designed to give graduate instruction during the summer vacation in special fields of agriculture, the courses being given by specialists from various institutions. The expectation is that the

school will be migratory, moving from institution to institution from year to year. Next year it will be held at Ohio State University. The movement is regarded as more or less experimental as yet, its future depending somewhat on its reception. Dr. A. C. True, director of the office of experiment stations, is to be director of the school for the next year. J. T. WILLARD.

KANSAS STATE AGRICULTURAL COLLEGE DAIRY SCHOOL.

BEGINNING with the first of November the dairy school will be in continuous operation throughout the year. It is the plan to continue the regular winter course of twelve weeks, as was done last year. This term will be devoted to a complete course in both theory and practice, more attention being given to butter makers with considerable practical experience than has been done heretofore, special courses in starters, Pasteurization and cream ripening being offered to those competent to take advanced work along these lines.

During the balance of the year, apprentices will be admitted to the number of twenty. As these drop out during their course, the oldest applicant in point of registration will be admitted. This term in apprenticeship work will constitute the first term's work of the student. To complete his work, he will be expected to enroll in the short course during the winter term. In this way, it is expected that most of the students in the winter term's work will have had either the apprentice work or actual creamery work before entering. More of his time can then be devoted to the text-book, which will constitute a heavy part of this term.

The apprentice will have only the creamery practice work, supplemented by four hours reading per week in the dairy library and two hours lectures per week on general creamery practice.

We expect the students to learn by doing and then take up the reasons why, or the text-book part of their work, after they have become familiar enough with creamery ways to understand the meaning of the texts.

Special features of the school this winter will be a week of dairy stock judging under the instruction of Mr. T. A. Borman, editor of the *Dairy Age*. The meeting of the State Dairy Association at the College will occur at the same time.

ED. H. WEBSTER.

CREAMERYMEN'S OPINIONS OF THE KANSAS STATE AGRICULTURAL COLLEGE DAIRY SCHOOL.

FOREST PARK CREAMERY, Ottawa, Kan.: We know something of the benefits to be derived from a dairy course, having a few men in our employ who have taken it, and we are also acquainted with several boys on the farm who have taken the special course, and it only requires a few minutes conversation with such boys to convince one of what the school has done for them along the line of dairying, about which a large majority of farmers are comparatively ignorant, especially in regard to care, breeding and feeding to obtain best results.

THE CONTINENTAL CREAMERY COMPANY, W. F. Jensen, vice-president, Topeka, Kan.: I think you are doing some excellent work at your College. I will venture to say that no other dairy school or experiment station in the United States is to-day securing the practical results that you are, and that is considered to be a fact all over the United States. Your dairy course is the largest factor to-day in this State in developing interest and knowledge in dairy matters so necessary for the dairy interests of the State. If you enlarge further and make your dairy school an all-year institution, the results will be inestimable in its good influence for the welfare of the State.

THE BASEHOR CREAMERY, F. H. Meyer, proprietor, Basehor, Kan.: I will be glad at any time to coöperate with the College in the cause of dairying, and especially the dairy school. I have found that, wherever I have been, students of dairy schools have the preference and always command a salary over those who have only experience, because they have a broader knowledge of the subject.

HARPER CREAMERY COMPANY, Harper, Kan.: We take pleasure in saying, that we are in hearty sympathy with all of the work done at the Kansas College and consider it one of the most valuable institutions in the State. No farmer nor dairyman can afford to be without the many practical and interesting bulletins you publish and no young man who intends being an agriculturist or dairyman should miss the opportunity of being thoroughly equipped in the theoretical and practical knowledge necessary to make his business a pleasure and a success.

THE CLYDE CREAMERY, Clyde, Kan.: We consider the short dairy course of inestimable value to any of our young men who expect to engage in any branch of dairying.

THE HESSTON CREAMERY COMPANY, Newton, Kan.: We have nothing but kind words for the Kansas State dairy school and will be glad to do anything that may further its interests.

PLEASANTON CREAMERY, Pleasanton, Kan.: We will gladly do anything we can to help the dairy course, as we think it is just what the great State of Kansas needs.

MAYETTA CREAMERY, Mayetta, Kan.: We regard the dairy school of great importance to all classes that handle cows, either for the creamery or private dairying.

CIMARRON CHEESE FACTORY, Cimarron, Kan.: I think it very necessary for dairymen to have the knowledge you are trying to disseminate and I want to send my son there to take the course this winter. Consider this an application and give him a place.

E. W. CURTIS, Council Grove, Kan.: Regarding the value of the dairy school, I will say that no young man can afford to miss such a course should he have any plan for taking up any branch of the dairy business. I went 700 miles to another state to attend one of the first dairy schools in the United States, and thought so much of it that I returned the two following winters to the same school. I borrowed \$100 to attend the dairy school the first winter and have always considered it the best deal I ever made. The money invested has been returned to me many fold and I owe what little measure of success I have attained to my first determination to attend a dairy school.

THE NORTONVILLE CHEESE MANUFACTURING COMPANY, Nortonville, Kan.: We are glad of a chance to help advertise your short course or any other department of our State Agricultural College. The people of the State do not appreciate the work that is being done for them at the Agricultural College.

GIRARD CREAMERY AND COLD STORAGE COMPANY, Girard, Kan.: We think the dairy course very valuable to the people. We will do all we can in helping it along. Any time we can be of any service to you, let us know.

ALSPAUGH BROS., Floral, Kan.: We think the dairy course a grand thing for patrons as well as creamerymen and only wish more would attend.

THE BELLE SPRINGS CREAMERY COMPANY, Abilene, Kan.: We have been watching with interest the results of the experiments which have been conducted during the last several years at the Agricultural College. The results of the experiments you have

made there during this period along the line of farm work, and especially dairy work, we deem invaluable to people interested in farming and dairying. We believe that to anyone who can possibly do so, that the time and cost, which we understand is very small, spent in attending the farm and dairy courses which you have there is time and money well spent.

CEDAR VALE CREAMERY AND POWER COMPANY, M. O. Ows, lessee, Cedar Vale, Kan.: I am well aware of the fact that if any of our young men could be induced to attend the short dairy course it would be a stimulant to the dairy business and beneficial to the farmers and indirectly the creameries. By giving more attention to feeding and breeding dairy animals I think the dairy school will accomplish what it is supposed to do—the making of practical dairymen. I have attended two terms of dairy school myself and will make it three if I ever have another opportunity.

THE FULTON CREAMERY COMPANY, Fulton, Kan.: We believe that you are taking the right course, and that your dairy school should be attended by the young farmers generally. Such instruction as you suggest would be of inestimable benefit to them and would make dairy work not only pleasant but profitable and assist materially in building up the creamery interests of the State. From the character of the bulletins issued by the Kansas State Agricultural College, we are free to say that the young men of the country need seek no further in order to get the best results, for the time spent in securing instruction, in this most profitable feature of farming and dairy work.

BRADY-MERIDEN CREAMERY COMPANY, Kansas City, Mo.: We have noted with much interest the success of the Dairy Department at Manhattan. We feel that it presents an opportunity to the farmers of the State of Kansas to inform themselves as to how to make dairying more profitable that should not be overlooked by anyone who has any interest whatever in the dairy business. The money spent by the State in making scientific experiments in feeding and breeding has enabled the department to accumulate a great deal of valuable information, and those desiring to succeed should keep in close touch with this department.

Remember Professor Clure's recital at the Manhattan opera-house December 9. Seats 25, 35 and 50 cents.

THE INDUSTRIALIST.

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LOCAL NOTES.

The State Grange will meet at Topeka December 10.

Doctor Mayo and family ate turkey with relatives in Junction City.

Instructor Webster, of the Dairy Department, enjoys a brand-new desk.

The State Teachers' Association will meet at Topeka December 25 to 27.

Don't forget Professor Clure's recital at the opera-house next Monday evening, December 9.

President and Mrs. Nichols entertained the Faculty at their residence on Monday evening, December 2.

Doctor Mayo and Mr. Gasser recently made a trip to Ogden, collecting material for making blackleg vaccine.

Superintendent Harriet Howell, of the Domestic Art Department, is making her home with Doctor Mitchell.

The hare-and-hound chase came off on Saturday morning, November 23, and resulted in a victory for the latter.

The Manhattan Poultry Association are arranging for an extensive poultry show to be held on December 23 to 26.

Professors Popenoe and Berry and Instructor Anderson went home over Thanksgiving to eat turkey with the "old folks."

Doctor Mayo was called to Wabaunsee the first of the week to investigate a disease among cattle. Several had died from pasturing in stalk fields.

The Hamilton society gave a reception to the Ionians, Friday evening, November 29, in their society room. All participants report a good time and lots of fun.

The senior class in agriculture went to the well-known stock farm of John Warner, in Eureka bottom, one afternoon of last week to take a lesson in stock judging.

Miss Gertrude Williams, our teacher of gymnastics last year, is now employed as director of physical culture for the Y. W. C. A. at Burlington, Iowa.—*Students' Herald*.

The fall term will close on Friday, December 20, and the winter term will begin on Tuesday, January 7. Examinations for admission will be held on Monday, January 6, at 9 A. M.

The second-year Domestic Science short-course students gave a dinner in Domestic Science Hall last Wednesday afternoon to a number of invited guests. All report an excellent table.

The next number in the College lecture course will be a concert by Rooney's Boys, Thursday, December 5. Those who heard them last year know that the entertainment will be first class in every respect.

Senior student R. C. Cole was thrown from one of the newly bought Percheron mares at the barn last Tuesday. He attempted to ride the steed but met with her decided objections, resulting in a dislocated thumb on his left hand.

Thanksgiving day closes the football season for the present year, as far as the work of the regular team is concerned, but if the weather remains favorable there will probably be a number of home games played before Christmas. The juniors have challenged the seniors, and the Websters the Hamiltons, while there is some talk among the freshmen of inviting the Faculty assistants for a trial of strength in the arena.

Robert C. Kedzie, professor of chemistry at the Michigan Agricultural College since 1863, and formerly president of the American Health Association, was stricken with paralysis November 23. Professor Kedzie is seventy eight years of age. His son, Wm. K. Kedzie, was professor of chemistry and physics at this College from 1874 to 1878, during which time Professor Kedzie often visited Manhattan. The newspaper reports exaggerated the extent of injury. Doctor Kedzie can walk and talk, and strong hopes are entertained of his substantial recovery.

The Chemical Department of the Experiment Station has been analyzing fifteen or twenty samples of sugar beets sent in from Garden City and other points in western Kansas by farmers who have grown the crop for shipment to the factory at Rocky Ford Colo. As these beets are purchased at a price that depends upon their sugar-content as determined by the factory, the farmers are interested in having a check analysis made by a disinterested party. The beets have shown very high percentages of sugar in most cases. Nearly all have run above twenty per cent. This high value is in part due to drying out of the beets.

To judge from the many inquiries received at the executive office and the many letters that come to the heads of the different departments, the outlook for a large attendance this winter is very flattering. In spite of all the building going on at the College it is a more serious question from year to year to provide room and instruction for the multitude of young men and young women who look to the Kansas State Agricultural College for an education. The new Physical-Science building will not change this condition of things materially, and more room will have to be asked of the next legislature. This College believes in expansion until every school district in Kansas will be represented in our class rooms and work shops.

ALUMNI AND FORMER STUDENTS.

Sergt. Robert Kimble, third-year last year, is at home on a furlough. He will probably remain till after Christmas.

Miss Minnie Howell, '01, will leave Saturday for Topeka, where she has secured a position as instructor in domestic science in the Industrial Institute.—*Nationalist*.

Professor Willard attended the annual reunion and banquet of the Johns Hopkins Club of the Middle West, at the Hotel Baltimore, in Kansas City, on the evening of November 29.

The announcement has been received of the marriage of Paul C. Milner ['91], of Chicago, to Miss Bessie Thompson, of Carbondale, Ill. Mr. and Mrs. Milner will be at home to their friends in Carbondale after January 1.—*Nationalist*.

H. P. Neilson, formerly a student here, but at present an assistant to Professor Georgeson in the Alaska Experiment Station, passed through here on his way to his old home in Denmark, Kan. He speaks well of Alaska's possibilities in agricultural lines and intends to return there next spring.

Miss Jeannette Carpenter, second-year student in 1897, and since then having graduated from the Michigan Agricultural College, is now teaching domestic science in Boston, under the auspices of the Young Women's Christian Association. Miss Carpenter left a most excellent record here, and her progress in her chosen field will be watched with much interest by her many friends.

J. M. Westgate, '97, formerly assistant in botany at this College, writes Professor Walters from Chicago University, where he is studying biology, that he is getting along well. He is studying zoölogy with Professors Child and Salisbury, ecology with Professor Cowles, and botany with Professor Coulter. He feels good that "there is but one man in this course who is doing better work in his daily drawings" than he.

Prof. W. H. Phipps ['95], of St. Joseph, who is connected with the Blue Valley Creamery, was in town Tuesday and assisted Manager Wade in putting in an Iowa Dairy Separator for Lonie Siebert, three miles east of town. He went to Beattie Wednesday to look up the prospects of opening up the skimming station at that point for the company he represents.—*Marysville Republican*. Mr. Phipps was the secretary of the K. S. A. C. a few years ago and will be remembered by many Manhattan people.—*Mercury*.

Miss Laura G. Day, '93, goes to Indiana to take part in a series of institutes under the auspices of Purdue University during December. Miss Day has been engaged as a special lecturer on domestic economy for the winter school of agriculture in the university. It seems rather incongruous to speak of such a course in a school of agriculture, but this is perhaps explained by the fact that domestic economy is still a new thing with them, and that all courses in their winter school of agriculture are open to women.

CATTLE DISTEMPER.

(Press Bulletin No. 104, from Veterinary Department.)

Within the past two years occasional reports have come to this department from different parts of the State of what appears to be a contagious disease of cattle that in some respects resembles "lump jaw." During the past few months these reports have been more frequent. Investigation shows the disease to be entirely different from true "lump jaw." The most important differences to be noticed by an ordinary observer are as follows: In cattle distemper the swelling comes on suddenly and always in the region of the throat and appears to be more contagious than true "lump jaw." True "lump jaw" comes on slowly and usually attacks the region of the face or jaws, and the lump or tumor appears to have grown fast to the bone in most cases. Cattle distemper attacks young animals most frequently, but may attack cattle of any age. The first symptom of cattle distemper usually noticed is a swelling of the throat, especially the glands in this region. This swelling appears quite suddenly, often within twenty-four hours, and is usually severe. This is preceded by a slight discharge from the eyes and nose and is associated with a slight fever, the temperature of the animal rising two or three degrees. As the disease progresses the swellings increase in size and an abscess containing a rather thick, yellow pus or "matter" forms. Sometimes two or three of these abscesses will form about the throat, on the side of the head or along the jaw. These swellings do not affect the bone but occur in the loose tissue and glands. If left alone the abscesses break and discharge pus, but do not heal readily, often remaining open and running for some time.

TREATMENT.—The disease appears to be contagious, but so far experiments do not show in what way. It is not highly contagious. Affected animals should be isolated from the healthy and not allowed to eat or drink from a common receptacle. In the early stages, if the swelling is thoroughly rubbed twice daily with a stimulating liniment it will usually "scatter" the swelling so no abscess will form. A liniment composed of equal parts of turpentine and kerosene oil is good. If two ounces of gum camphor is dissolved in half a pint of turpentine and an equal amount of kerosene added the liniment is improved. This should be rubbed on twice daily until the skin begins to get sore. After puss has formed the abscess should be opened freely, washed out with warm water and a strong solution of blue vitriol (sulphate of copper), a tablespoonful dissolved in one-half pint of water. This can be injected once daily for two or three days. Pure tincture of iodine is also good. In some cases putting a small lump of blue vitriol in the cavity works well. If the abscess is not opened early there is a tendency for other abscesses to form.

Nearly all cases recover in a few weeks. Where they do not heal, the cavity can be swabbed out with "butter of antimony" once, and then the blue vitriol solution used. N. S. MAYO.

Dairy Short Course

DO YOU desire to become more proficient in your present position? Do you desire to improve yourself in order to hold a better position? Do you have men in your employ who would be benefited by a dairy education? If so read the following and send for as many short-course circulars as you can distribute:

Council Grove Creamery, E. W. Curtis, proprietor. "Regarding the value of a dairy school I will say that no young man can afford to miss such a course, should he have any plan for taking up any branch of the dairy business. I went seven hundred miles to another state to attend one of the first dairy schools in the United States, and thought so much of it that I returned the two following winters to the same school. I borrowed \$100

to attend the dairy school the first winter and have always considered it the best business deal I ever made. The money invested has been returned

Kansas State Agricultural College

January 7

to

March 28

1902



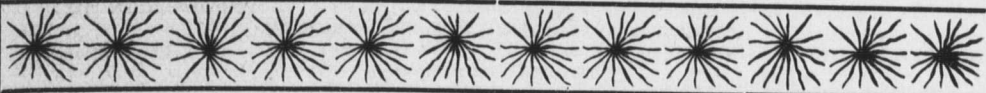
Tell your friends about the Kansas dairy school and get them to write for full particulars. Address

Pres. E. R. Nichols
Manhattan

to me many fold and I owe what little success I have attained to my first determination to attend a dairy school."

Forest Park Creamery Company: "We know something of the benefits to be derived from a dairy course, having a few men in our employ who have taken it, and we are also acquainted with several boys on the farm who have taken the special course, and it only requires a few minutes conversation with such boys to convince one of what the school has done for them along the line of dairying, about which a large majority of farmers are comparatively ignorant, especially in regards to care, breeding and feeding to obtain best results."

Continental Creamery Company, W. F. Jensen, vice-president: "I think you are doing some excellent work at your College. I will venture to say that no other dairy school or experiment station in the United States is to-day securing the practical results that you are, and that is considered to be a fact all over the United States. Your dairy school is the largest factor to-day in this State in developing interest and knowledge in dairy matters so necessary for the dairy interests of the State."



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Number 11.

THE INDUSTRIALIST



ISSUED WEEKLY BY

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AGRICULTURAL COLLEGE

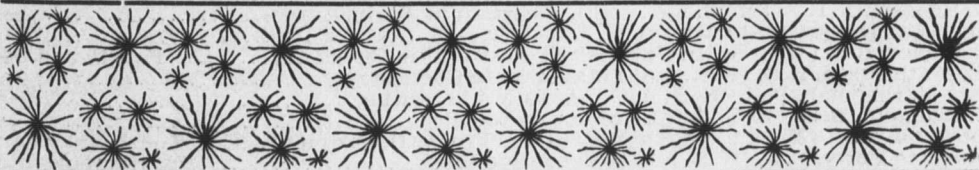


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THE INDUSTRIALIST.

VOL. 28.

MANHATTAN, KAN., DECEMBER 10, 1901.

No. 11

STUDENTS' OPINION OF THE KANSAS STATE AGRICULTURAL COLLEGE DAIRY SCHOOL.

MR. W. E. REYNOLDS, Hallam, Neb.: I attended the dairy course of 1901 at the K. S. A. C. and think it the best thing I ever did. I was able to find pleasant and profitable employment as soon as I had finished the course. My being able to obtain this employment I think was due almost entirely to the knowledge that I gained at the dairy school. In fact, it has been my experience that next to taking one of the four-year courses at the Kansas State Agricultural College, the dairy course, with its plain and practical teachings, will be the best investment of time and money that any one can make who intends taking up work along dairy lines.

MR. W. W. ALSPAUGH, Floral, Kan.: Last spring, when I went from the dairy course of K. S. A. C., I began working for Alspaugh Bros. I asked them to get Farrington's Alkaline Tablets for testing the acidity of cream and told them they were churning the cream before it was ripe, and found it to be .50 per cent acidity. The next day I ripened the cream to .65 per cent and it churned sixty pounds more butter than the day before. That settled it. This is only one of the many good points to be derived from the dairy course.

MR. M. R. EASTON, Cunningham, Kan.: In my estimation, the Kansas dairy school cannot be praised too highly. I think the short dairy course is one of the things every farmer who expects to make a success in his profession should study. There are things to be learned in this course that are of interest to every farmer, whether he milks cows for a creamery or not, as he should be able to select good animals and care for them after he gets them. When I entered the dairy school last January, I supposed the greater part of our work would be in the creamery, and that we would study during our leisure time on dairy subjects, as I did not think it possible there were so many studies connected

with dairying. As to studying our leisure time, I did not have any, and I think all of the dairy boys will tell you the same. I do not regret the time or money I spent while taking this course, as I find the knowledge gained there of vast importance to me in operating the skimming station at this place. I wish to recommend this school to any young man who is interested in dairying, as I can assure them from my own experience that their time will be well spent.

MR. A. J. MYERS, Americus, Kan.: I value the three months' dairy course at the K. S. A. C. which I took last winter very highly. I took charge of the station here the next week after I completed the course and have been here ever since. I consider the drill and instruction in feeds and feeding and veterinary elements worth many times the cost of the term to any one intending to follow farming or dairying. If I did not run a creamery or station another month I would always be glad I took the course.

MR. DELBERT MORNING, Parsons, Kan.: Time and money spent in the dairy school is well invested.

MR. D. P. YODER, Walton, Kan.: It seems to me that this course covers an almost incredible amount of work to be done by inexperienced persons in so short a time, but that it can be done has been carefully demonstrated. About two weeks before the end of the term I accepted a position as local salesman of the De Laval hand cream separator in northwest Iowa, where I found the help derived from the course to be of the greatest benefit. This place was secured through being a dairy student, as my employer wanted men who could explain dairy matters to purchasers of machines.

MR. ROSCOE WHITE, Morehead, Kan.: I attended the dairy short course during the winter of 1900 and 1901 at Manhattan, and never have regretted my time spent there. I have helped a great deal in the skimming-station work this summer by applying the ideas that were taught during my time at the school. Every creamery man and skimming-station operator should not fail to take this course. It helps you a great deal and suggests a great many theories that you would not think of, and thus encourages you to be on the outlook to improve in your work. I would not miss this course for anything now if I were where I was a year ago. I can recommend the dairy school at Manhattan highly, to all who are contemplating attending a dairy school this winter.

MR. F. H. MCINTOSH, Alta Vista, Kan.: After working as a helper in a creamery for nine months, I concluded to take the three-months' dairy course at the K. S. A. C. After I had completed my course I accepted a position as station operator with the Continental Creamery Company at \$10 per month better than I received before taking the course. I cannot speak too highly of this course to those who wish to take up farm dairying or creamery work.

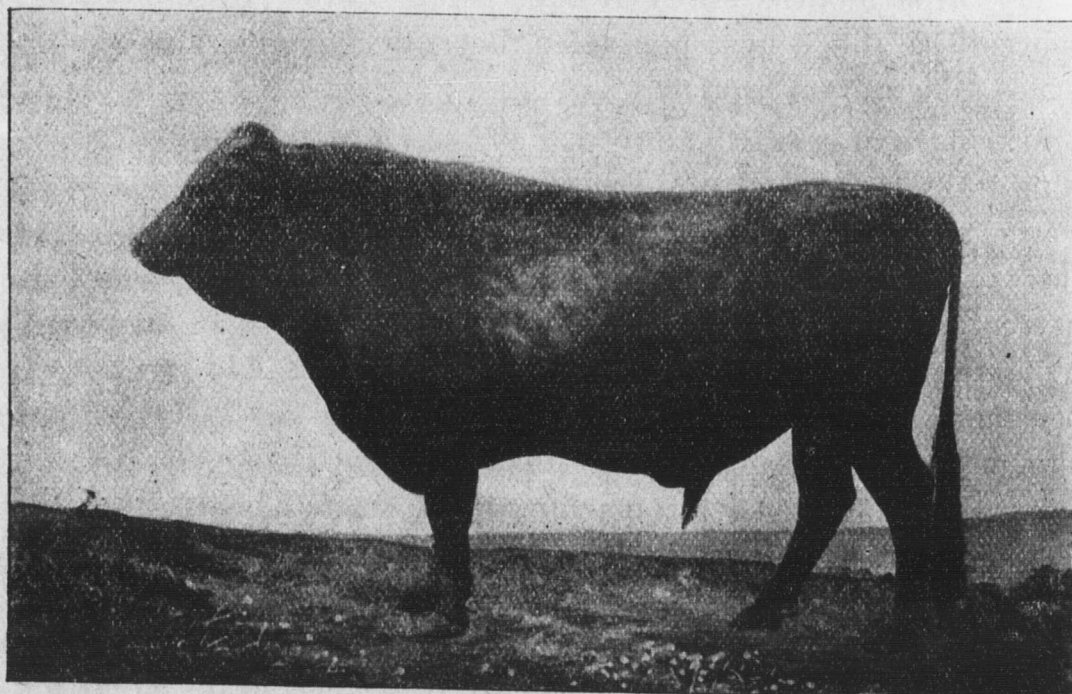
MR. GEO. P. STUBBS, Winfield, Kan.: I would like to speak a word for the dairy course of K. S. A. C. If anyone wishes to equip himself as a dairyman, it is worth ten times the cost to take the dairy short course. I would advise every young man who expects to become a butter maker, cheese maker, or even a private dairyman, to take the dairy course of 1902. You not only learn about butter making and cheese making, but all about cattle, how to feed and to care for them to get the most out of them. I would not take any amount of money for what I learned at the K. S. A. C. dairy course of 1901.

MR. J. E. BAUMBAUGH, Rye, Colo.: Every young man who is contemplating entering the dairy business, either to operate a dairy farm or work in a creamery, should avail himself of this invaluable opportunity offered by the State. Whatever success I have had or may have in the dairy business, I feel that it is due largely to my three months spent at the College taking the short dairy course. In this course is given a thorough scientific understanding of milk and its products.

MR. M. H. MATTS, Homewood, Kan.: As a former student of the Kansas State Agricultural College dairy course, having taken the course as offered there during the winter of 1901, I wish to say that, to anyone interested in dairying who has never been connected with such a school, the valuable knowledge to be gained by taking such a course cannot be overestimated, and to such experienced persons I would say, that they could not invest a small sum of money more profitably than by attending the K. S. A. C. dairy school, because the teaching force cannot be excelled, the facilities for teaching are first class, the demand for more and better educated help is increasing, the necessary expenses are reduced to a minimum, and the course is open during the season when dairy men and creamery men can better attend it. There are many things that can attribute to the success of a student if he

goes with that end in view and stands ready to grasp every opportunity that is offered. I hardly know how to express my appreciation of what the dairy short course has done for me, and, if it were possible, would say to every prospective student who is alive to dairy work, to attend the K. S. A. C. dairy school at any expense and you will never regret it.

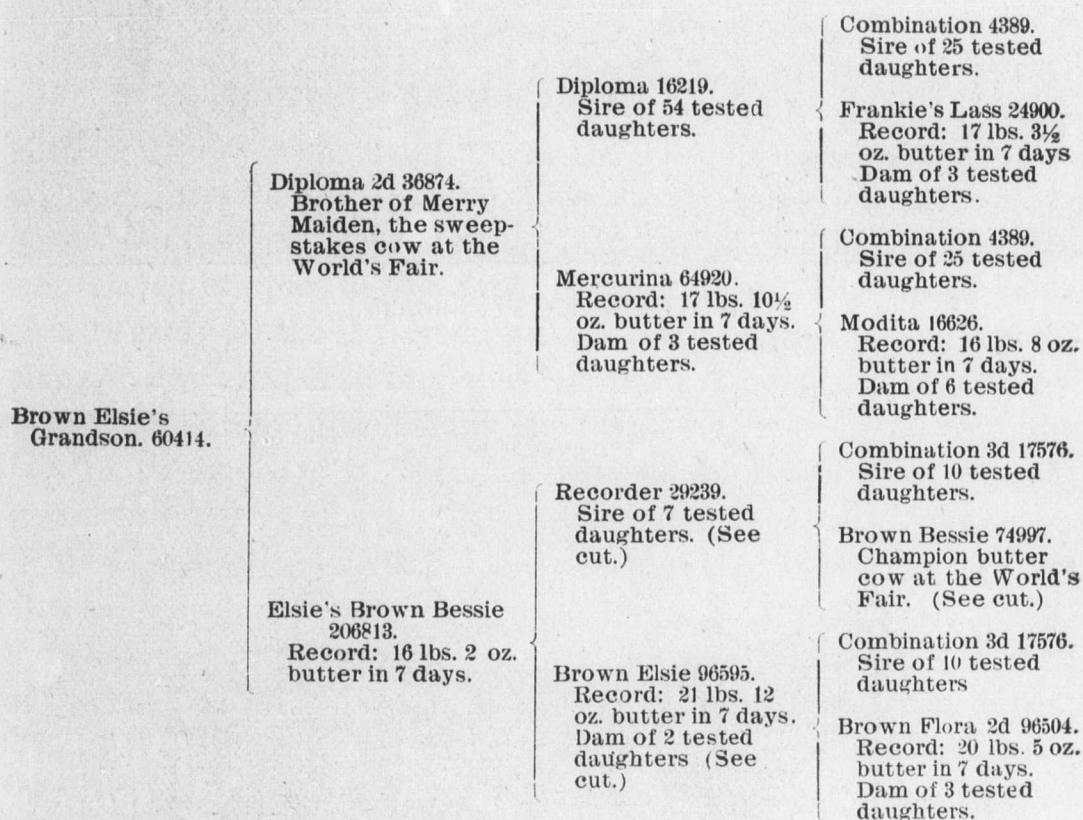
MR. S. B. PRAY, White City, Kan.: I never used time and money to better advantage than that which I spent in attending the dairy short course at the Kansas State Agricultural College. The three months I spent there last winter enabled me to gain a knowledge of dairy and creamery matters that is of inestimable value to me. I was also able to secure a much more satisfactory and better paying position. The instruction is thorough and complete and the course covers as much ground as is possible in so short a time. Anyone wanting to know more about dairy and creamery work will find their desires fulfilled by the dairy short course. The skimming-station operator can here equip himself for more and better work. The dairy farmer will be taught how to increase his profits. Twelve weeks time and \$45 spent in attending the dairy school will be a profitable investment to anyone interested in the dairy cow and her products. It was to me.



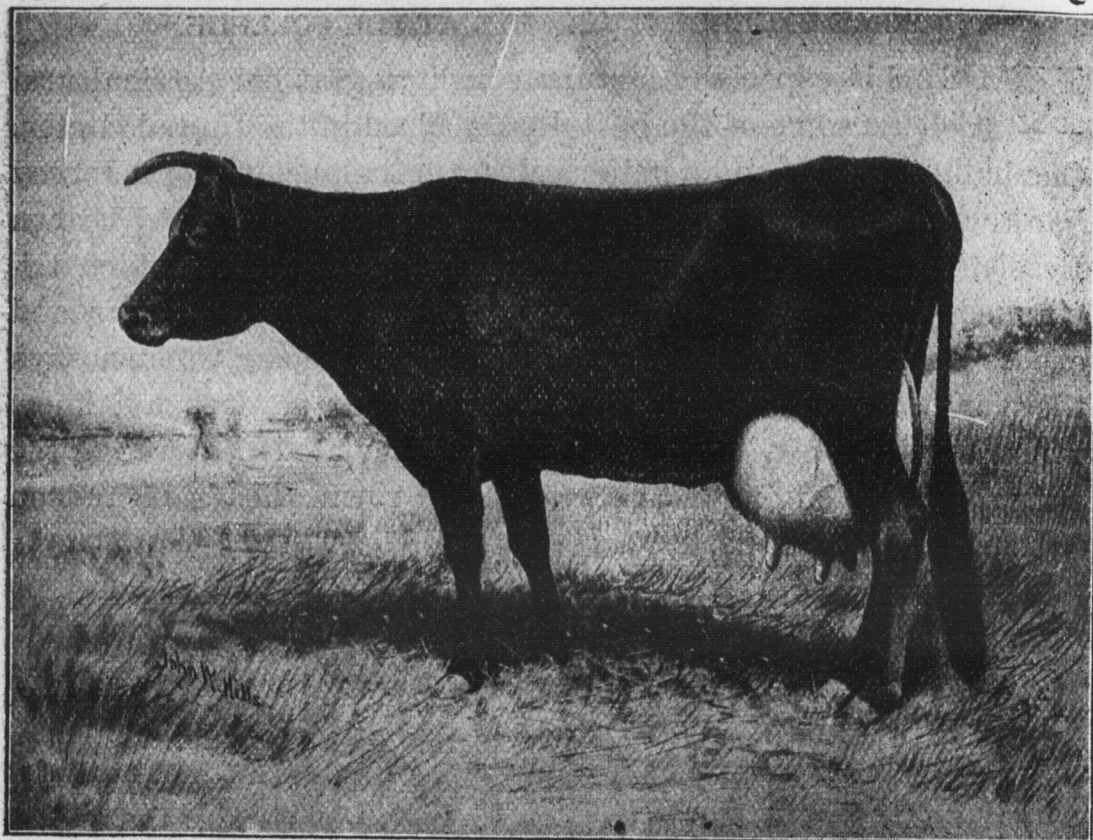
RECORDER 29239. (See pedigree next page.)

SOME EXCELLENT JERSEYS AT THE COLLEGE.

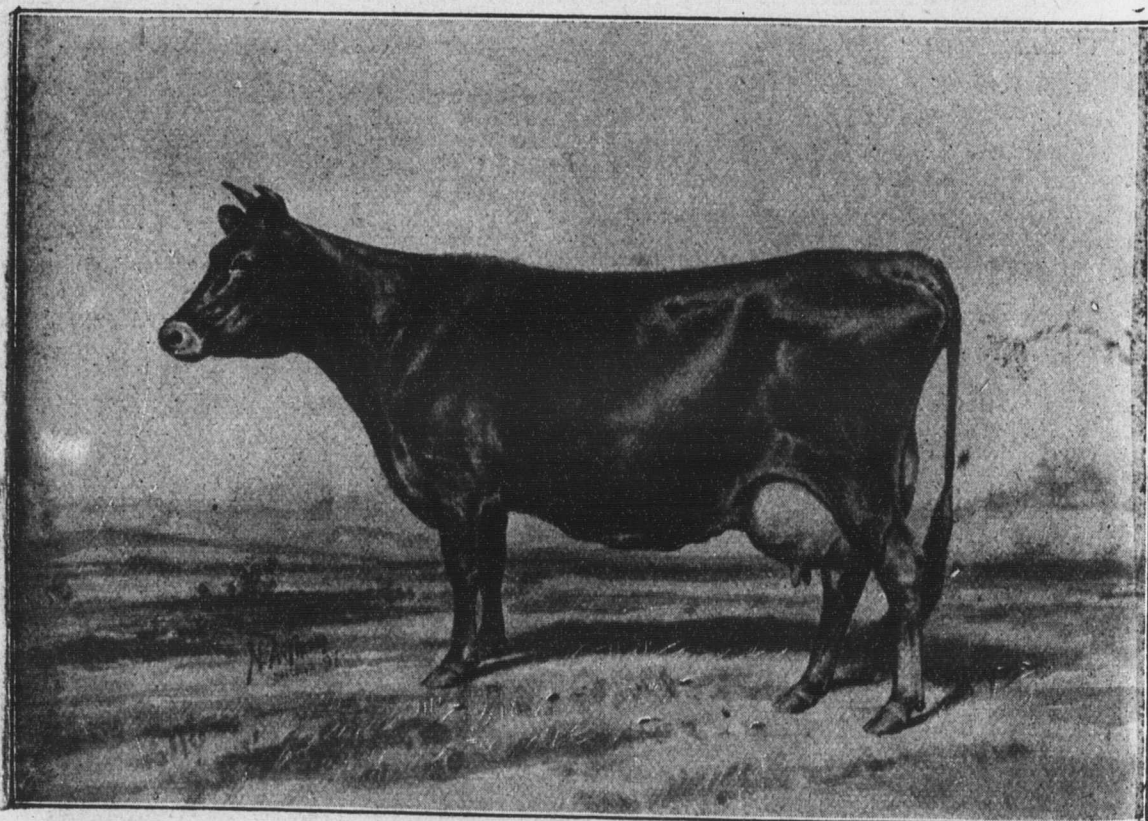
KANSAS is especially fortunate in having at her Agricultural College some of the best Jersey blood in the United States. One bull, two cows and a heifer calf form the nucleus for a Jersey herd composed of the combination blood which produced Brown Bessie, Merry Maiden, and Ida Marigold, three cows which triumphed over all competitors in the production of butter and cheese at the Columbian World's Fair. Secretary Coburn says there may be better blood in the world but he does not know where to look for it. Following is an abbreviated pedigree of the young bull belonging to the College, Brown Elsie's Grandson 60412, born October 22, 1900.



It will be noticed that there are references to a large number of tested cows in this pedigree. No cow is eligible to the tested list until she has produced at least 14 pounds of butter in seven days, or enough in one week to supply an ordinary person for three months. Brown Elsie produced over 21 pounds of butter in one week, or 50 per cent more than required for eligibility to the tested list. Brown Bessie has a record of 3.48 pounds butter in one day, 72.2 pounds in thirty days, 335.8 pounds in 140 days. The grand-sire of the Brown Elsie's Grandson, Diploma, is the sire of fifty-



BROWN ELSIE 96595.



BROWN BESSIE 74997.

four cows with high records, and his ancestors trace to Eurotas, the cow that produced 778 pounds of butter in one year, or enough to feed one person fifteen years, or fifteen persons one year. The average common cow produces about 90 pounds of butter per annum. These records show the value of good breeding.

The cuts in this issue of the INDUSTRIALIST show the type and conformation of good Jersey cattle and present a valuable and interesting study to the student of dairy problems. These cuts were loaned by H. C. Taylor, of Orfordville, Wis., the man from whom the College stock was purchased and who is making an enviable reputation and handsome profits as a breeder of superior Jersey cattle.

D. H. OTIS.

THE NUMERICAL VALUE OF π .

OF THE three famous problems of antiquity, perhaps none has received more attention than the one referring to the value of π . Who first proposed the problem of finding the square whose area is equal to the circle is not known. But we do know that as early as 420 B.C. men were wrestling with it, and a great many to-day are persisting that there must be an exact ratio between the circumference and the diameter, notwithstanding the fact that Lambert, in 1761, showed that the number was incommensurable, Legendre, in 1803, extended it to π^2 , and Lindemann, in 1882, proved the number transcendental, *i. e.*, not expressible by an algebraic equation.

It has therefore taken almost two thousand years of hard work of the best mathematicians to find out that the problem is impossible. Men believed for a long time that if they would only carry the work out far enough they would finally come to the point where the fraction would terminate, or at least repeat itself. So they worked on, one taking up the work where the other left off, each thinking he would be the lucky one to reach the coveted goal.

Of the early mathematicians who carried on the work, none deserves more credit than Antiphon, who lived 420 years B.C. He conceived of the idea that if he took a circle and inscribed a square and then by continually doubling the sides of the polygon he would finally reach the circumference of the circle. And since he could construct the square equivalent to any polygon, he could therefore square the circle. Hippocrates about the same time at-

tempted to square the circle by taking a chord on the given circle equal to the radius and on this chord construct a semi-circumference. Then he showed by taking away the segment between the chord and the first circle he would have remaining a lune whose area was twice that of the right triangle inscribed in the smaller semi-circumference, and hence by carrying this work on around the circle he could actually square the circle. Both solutions would only give approximate values and hence were not accepted by the Greeks. Antiphon's solution, however, was followed by most of the later writers, and it laid the foundation for the infinitesimal calculus.

Archimedes, who lived about 250 B. C., gave the proof essentially as it is given in modern text-books on elementary geometry to-day, viz., by taking the limit of the inscribed and circumscribed polygon and showing that the true value must lie somewhere between their perimeter. By these means he showed that $3\frac{1}{7} < \pi < 3\frac{10}{71}$. Since his time this method has been used and the number of the sides of the polygon has been carried to 2^{63} .

Since to the Greek the circle was the ideal figure, it would not do to have any approximation. This was below geometry and applied to surveying where only approximate values could be had any way. This perhaps accounts for the large number of men who labored on this problem among them. England, Germany and France have produced their share of circle squarers and computers of the value of π . During the revival of learning men worked persistently on the subject carrying on the work to thirty, forty, one hundred, and finally to seven hundred seven places. We give below a few of those who worked on it and the values obtained.

The early Egyptians used 3.1604 as early as 2000 B. C. The Jews used 3, the Arabians $\sqrt{10}$, and for that day and age were remarkably accurate. Since 420 B. C. the more accurate values have been used. Viète, the noted French mathematician, who delighted in carrying out long numerical computations, carried the approximation to ten places in 1580. Ludolph Van Ceulen, who devoted nearly his entire life to the computation of π , carried it to thirty-five places, using polygons of 2^{63} number of sides. It was considered such a remarkable feat that the number was inscribed on his tombstone in St. Peter's churchyard at Leyden. He did this, too, before the use of logarithms. It is frequently called Lu-

dolph's number on this account. John Wallis, of England, found by the same method the value of $\frac{\pi}{2} = \frac{2.2.4.4.6.6.8.8. \dots}{3.3.5.5.7.7.9.9. \dots}$ and by the use of this formula the value of π can be found as near as we wish to carry the work. Machin's formula is perhaps simpler: $\frac{\pi}{4} = 4 \tan^{-1} \frac{1}{5} - \tan^{-1} \frac{1}{239}$. In 1833 Ruthford, Richter and Shanks were vieing with each other to see who could carry the number out to the greatest number of places. Richter won in 1854 with 500 places, all verified, and Shanks capped the climax in 1873 when he reached 707 places. I have no authority whether this has been verified or not.

WM. ANDERSON.

SORE MOUTH OF CATTLE.

(Press Bulletin No. 105, from Veterinary Department.)

DURING the dry weather of the past summer, and in the early fall, a disease new to most cattle-men made its appearance in different parts of the State, but with the coming of the cool, moist weather of autumn generally disappeared. The disease was a sore mouth of cattle, and was popularly called "black tongue." The disease attacks cattle of all ages, cows as well as young cattle, and appears to be contagious, although it does not spread rapidly, and in some instances only one or two cases would occur among a large number of cattle. In other instances a dozen young cattle running together would all be attacked by the disease. The first symptom usually noticed was inability or disinclination to eat. There is also a profuse discharge of saliva that drips from the mouth, often frothy, due to the working of the jaws and tongue. Raw, depressed sores appear on the inside of the lips and cheeks, as well as on the tongue, gums, and pad of the upper jaw. In most cases the tissue seemed to slough out and the sores were covered in the center by black-colored, dead tissue, hence the popular term "black tongue." The edges of the sore were raw and inflamed and often contained a little pus or matter. In some cases the sores were so extensive that the teeth are reported to have dropped out, and in other cases the tongue was swollen so severely that it protruded from the mouth. Associated with the soreness of the mouth there was an inflammation of the front feet. The feet were hot to the touch and tender to walk upon, and the animals appeared so stiff in the fore legs they could move with difficulty. There is a fever associated with the disease, the tem-

perature rising, in most cases, to 105° F. In cows the milk flow is lessened, and all animals fall away rapidly in flesh, because of the inability to eat.

TREATMENT.—Sick animals should be isolated from the well and fed on soft, nutritious foods, such as mash, gruel, etc. If left in pastures they may starve, because of the inability to eat. The mouth should be swabbed out two or three times daily with a saturated (all water will dissolve) solution of borax, applied with a sponge or soft cloth. A solution of a tablespoonful of alum dissolved in a pint of water is also excellent.

Practically all cases make a good recovery if they are cared for and carefully fed. The greatest loss is due to the falling away in flesh. Milk from cows affected should not be used for food or fed to calves.

At the present time, December 1, the disease seems to have disappeared, and it is hoped may not reappear. The disease is not serious and is not the contagious "foot and mouth disease" of Europe.

N. S. MAYO.

The executive committee of the Kansas State Editorial Association met at Topeka, Tuesday evening, and chose Manhattan as the place, and February 3 and 4, 1902, the time, for holding the annual meeting. No gathering in the State is calculated to do a town or a community so much lasting good as the assembling of the country editors in their annual meeting, and Manhattan is particularly fortunate in securing the meeting at this opportune time. Gomer Davies, of the *Concordia Kansan*, and president of the association, stated to members of our committee, without solicitation, that, as he saw it, the time had arrived for the country editors to become better acquainted with the State institutions and as the Agricultural College, the greatest poor boys' and girls' school in the world, about which so much has been said and so little actually known by these moulders of public opinion, he would be very much pleased to meet at Manhattan. This statement gave our committee, appointed by the Commercial Club, hope, filled each member with enthusiasm, and when the invitation was extended and claims presented, this city was unanimously chosen. The committee sent down by the Commercial Club was composed of the following gentlemen: F. M. Emmons, Sam Kimble, Pres. E. R. Nichols, W. R. Smith, S. W. McGarrah, and J. J. Davis.—*Mercury*.

THE INDUSTRIALIST.

*Published weekly during the College year by the
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Manhattan, Kansas.

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LOCAL NOTES.

Mr. D. S. Kelley, professor of natural sciences in the Kansas State Normal from 1887-'97, conducted chapel exercises Thursday morning.

The Ross boys were agreeably surprised last Thursday morning by unexpectedly meeting their father at the College, who had stopped off on his way home from Kansas City for a short visit.

The many friends of Mrs. Charlotte P. Fairchild will be interested in learning that she is spending the winter in Kansas City with her daughter, Mrs. Agnes F. Kirschner, who now lives at 3605 Oak street.

President Nichols was in Topeka Tuesday and Wednesday looking after some College business, and more particularly inviting the Editorial Association to visit Manhattan and the Kansas State Agricultural College.

Clair Legere was showing his father around College the latter part of last week. Mr. Legere is from Graham county. He thinks the College is doing good work for the western farmer, besides educating his sons and daughters.

Mr. L. B. C. Josephs, of the May Stewart Company, occupied a part of the chapel time Thursday morning in rendering Longfellow's "Skeleton in Armor." The hearty applause which followed showed that he had pleased his hearers.

The band boys now wear uniforms. They are of the regulation College style, but with red stripes on the trousers and lyres embroidered on the collars and caps. The boys make a neat appearance and are in good shape to go on dress parade.

Thad Hoffman and Fred Fockele held down chairs in the orchestra Friday morning and gave things some of the old-time appearance. They left yesterday with the Wagner Symphony Club, of which they are members, for a tour of the State.

The concert given by Roney's Boys in the College chapel was indeed a rare musical treat. The house was full, notwithstanding the fact that Romeo and Juliet were billed for down town, and the large audience were not disappointed in the program rendered.

Dr. G. P. Howard [second-year student 1881], who has had for years a large and successful practice at Halstead, Kan., spent several days here with his mother, Mrs. C. G. Howard, the first of the week. The doctor and his family are moving to Denver, where he will continue the practice of medicine.—*Nationalist*.

Judge M. B. Nicholson, of Council Grove, passed through here Tuesday night on his way home from attending the supreme court at Topeka. His son is attending College here. The judge speaks in the highest terms of College and thinks it beyond doubt the best school in the State for young men to attend.—*Nationalist*.

The Printing Department has been flooded with applications for printers, and is not able to supply the demand. Those who call themselves printers and work for from \$4 to \$6 per week are plentiful, but \$10 to \$15 per week men—men who know something about the trade and realize what they must do to hold good jobs—are scarce. Many of the applications say they prefer printers from the Printing Department, because they get an educated man as well as a printer.

The Fourteenth Annual Report of the Experiment Station was received from the printer last week. The report itself covers twenty-four pages and includes the financial statements, a summary of the publications issued during the year, and of the work in progress in the several departments. It also contains a list of the publications to date and an index to those for the year which it covers. With the bulletins for the same period it makes the largest volume that the Station has issued since the second annual report.

Last week Monday evening, President and Mrs. Nichols entertained the members of the Faculty with their wives, at their beautiful home on Juliette avenue. The duties of College officers are so various that a time can scarcely be found when all are at home, consequently in this case a number who were away on farmers' institutes or other duties missed a very pleasant event. In games and conversation, the evening went all too quickly, and terminated fitly the Thanksgiving vacation. Such social gatherings are of great real benefit to the Faculty, in enabling its members to become acquainted with each other, a privilege which College duties do not bestow. More frequent informal gatherings of the College family could not be otherwise than of great value to the institution, as well as of pleasure to the participants.

C. C. Georgeson, professor of agriculture in this institution, 1890 to 1897, and now special agent of the United States department of agriculture in charge of the agricultural experiment stations of Alaska territory, visited the College last Tuesday, and spent half a day in looking over the changes in the buildings and equipment that have taken place during the four years of his absence. He was much pleased with his observations. Professor Georgeson is very much interested in his work in Alaska, and feels that there is a large and important field there for investigation. An immense amount of tillable land exists in the territory, and he has great faith in its agricultural possibilities. Though the season is short, the very great length of the days gives a sunlight period that very largely makes up for it. When the sun sets at 11:00 P. M., and rises at 1:00 A. M., there is a good deal of time per day for plant growth. Professor Georgeson's family is spending the winter in Portland, Ore.

The long-delayed question of finding a larger room for the Manhattan post-office, where the free delivery work could be handled, has been settled by an agreement between the post-office department and J. B. Anderson by which the government is to lease the back portion of Mr. Anderson's building for a period of ten years at \$600 a year. Mr. Anderson will put in \$2,000 worth of new fixtures and there will not be a better second-class post-office in the State than the one here. Free delivery will begin just as soon as the change of location can be made.

The annual meeting of the Kansas State Horticultural Society will be at Topeka, December 26 to 28. The program has just been published. A large display is expected, and \$100 is set aside for premiums. Every meritorious exhibit not a duplicate will receive a premium. Five specimens of the larger fruits and ten of the smaller will constitute a "plate." Canned, preserved, dried and jellied fruits, and unfermented fruit juices or other fruit or vegetable products, also flowers, seeds, bulbs, etc., will be welcome. The question box is open, and questions may be sent to the secretary's office at any time, to be answered at the meeting.

ALUMNI AND FORMER STUDENTS.

H. A. Platt, '86, has resigned his position as a commercial traveller and is now business manager of the Guthrie (Okla.) *Leader*.

Dr. J. J. Johnson, '95, is now professor of physiology and director of the physiologic laboratory in Barnes Medical College, St. Louis, Mo.

Con M. Buck, '96, and Winifred Houghton Buck, '97, have moved to Topeka. Mr. Buck is now a transit-man for the Sante Fé Railway Company.

Fred Fockele, '01, was about College several days last week shaking hands with his many friends. He looked very natural "sawing the big fiddle" in the orchestra. He is as jolly as ever.

O. H. Halstead, '95, is teaching mathematics in Platt's Commercial College, St. Joseph, Mo. This institution is conducted by E. M. Platt, student in 1882, son of J. E. Platt, formerly professor of mathematics here.

The magazines contain advertisements of a new book by F. A. Waugh, '91, professor of horticulture in Vermont University. Professor Waugh's latest contribution is on "Plums and Plum Culture," and as he is one of the best informed men of the country on plums, the book may be fairly assumed to be authoritative.

Isaac Jones, '96, has resigned his position in Alaska under Professor Georgeson. He has been in charge of Rampart station on the Yukon river. He recently made a walk of some four hundred miles from the Yukon south to the coast, exploring the country with reference to its agricultural possibilities. Mr. Jones is going into business on his own account in California.

INSTRUCTION IN

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FARMERS' SHORT COURSE

KANSAS STATE AGRICULTURAL COLLEGE

JANUARY 7 to MARCH 28, 1902.

SPECIAL FEATURE, THE JUDGING SCHOOL

**Judging Poultry, Beef and
Dairy Cattle, Swine and Horses.**

Judging Beef Cattle.—February 24 to March 1, John Gosling, Kansas City, will give instruction in judging beef cattle. The College has ten breeds of pure-bred cattle, a herd of scrubs and another of grade cattle and will borrow many cattle from neighboring breeders.

Mr. Gosling has been a judge of beef cattle at State and other large fairs in Ohio, Indiana, Illinois, Missouri, Minnesota, Iowa, Nebraska and Texas, and at the Chicago and Kansas City Fat Stock shows. The *Breeders' Gazette* says that he is a judge among judges and that few men can set forth their views with such force and clearness.

It will pay every Kansas stockman to take this work. Get your friends to come.

For full particulars address

Pres. E. R. Nichols, - Manhattan, Kan.

CHRISTMAS NUMBER.

**THE
INDUSTRIALIST**

Historical Society

VOLUME 28.

NUMBER 12.

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No. 12

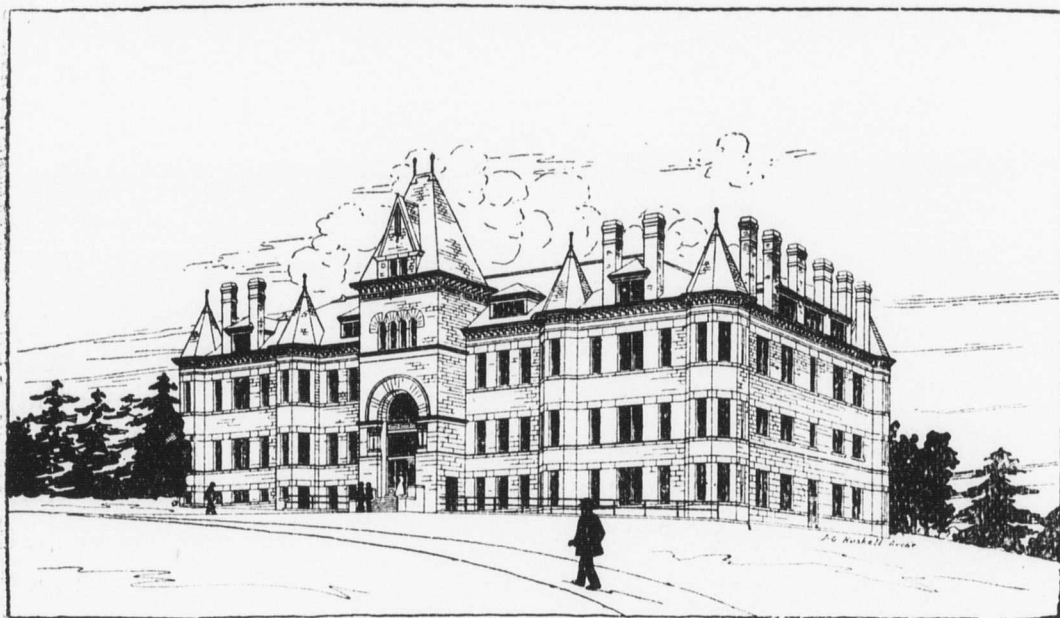
THE KANSAS STATE AGRICULTURAL COLLEGE, AS SEEN BY THE KANSAS COMMERCIAL NEWS.

THE following pages contain a copious series of excerpts from an article in the November number of the *Kansas Commercial News*, published at Topeka and edited by a well-known newspaper man, Mr. T. A. McNeal. The original contains a number of cuts, among them one of the Faculty and one of the Board of Regents, which, on account of their large size, could not be reproduced here. The reason given by the editor for publishing such a complete write-up of this institution are stated in another place of the *News*, where he says: "We have been inclined to believe that recently an erroneous impression has gotten out about the Agricultural College, and that a good many Kansas people believe that the institution is not measuring up in all respects to the plan upon which it was founded. Of course we do not pretend to say that the institution and its work cannot be improved. To say that there can be no improvement is to say that there can be perfect human management. We believe that the Agricultural College will continue to improve and widen the scope of its work from year to year and that in ten years from now it will be a greater institution than it is now, but we do say that at present it is the greatest school of its kind in America."

The Lord made the site upon which the Kansas State Agricultural College stands, in Manhattan, expressly for that purpose, the United States government, over the signature of Abraham Lincoln, provided an endowment fund in 1862 which has grown to more than \$500,000, and the State of Kansas has since from time to time erected the buildings and appropriated its share of the funds necessary to conduct the most remarkably successful agricultural college on the globe. That is why a representative of *The News* spent a day recently in an endeavor to find out what the institution is actually doing. Other states have agricultural colleges, because the government at Washington was kind enough to

treat them as well as Kansas and make provision for them, but its dollars to doughnuts that there is not another agricultural college in the whole country as thoroughly appreciated by those it serves as is the Kansas school. The total enrolment this year will reach fifteen hundred. This is an attendance much larger than that shown by any other state, and although the College has other departments than the agricultural, the percentage of men taking this course is larger than in any other similar school.

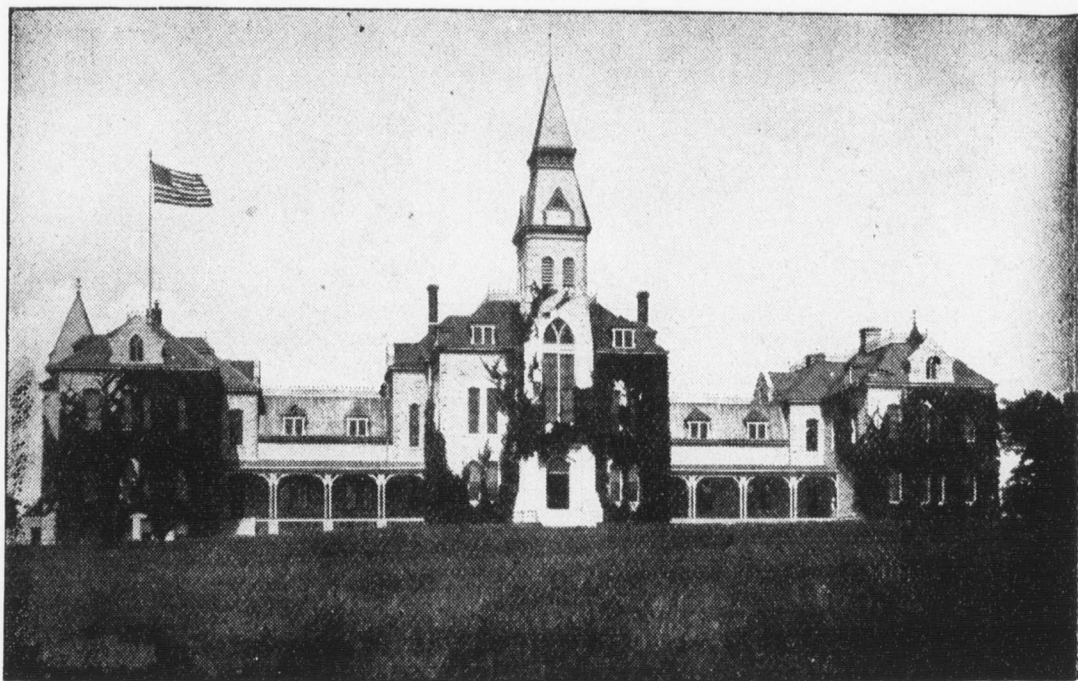
It is an eye-opening experience—a visit to the Kansas State Agricultural College. To begin with, the grounds over which the



PHYSICAL-SCIENCE HALL

series of buildings stand, at an elevation which gives them the appearance of so many stately sentinels, are the most beautiful, the most artistically picturesque in all the land. The landscape-gardener made use here of his happiest dreams, so that the orchards, the vineyards, the gardens and the winding, tree-lined walks and gravel drives which form the immediate surroundings of the College buildings afford a sort of labyrinthian view of beauty that reminds the visitor of the land of—Kansas. Of the three hundred twenty-three acres of land owned by the College and devoted almost wholly, with sixty-seven acres of leased land, to experiments, this is the garden spot, and every resident of Kansas should see it. As to the buildings themselves, they are of the famous Manhattan limestone, which, like the hair of the sage, grows whiter and more beautiful with age, and are of an archi-

ecture that is plain but attractive. The group consists of the Main College building, Domestic Science Hall, Mechanics Hall, Gymnasium, Horticultural Hall, Horticultural Laboratory, Armory, Library and Agricultural Science Hall, Agricultural Hall, Farm Barn, Dairy Barn, Horticultural Barn, and a new Chemistry and Physics building is now well under way, for which an appropriation of \$70,000 was made. These structures are all light and airy and heated and lighted throughout by steam and electricity from plants operated and owned by the College. Including the



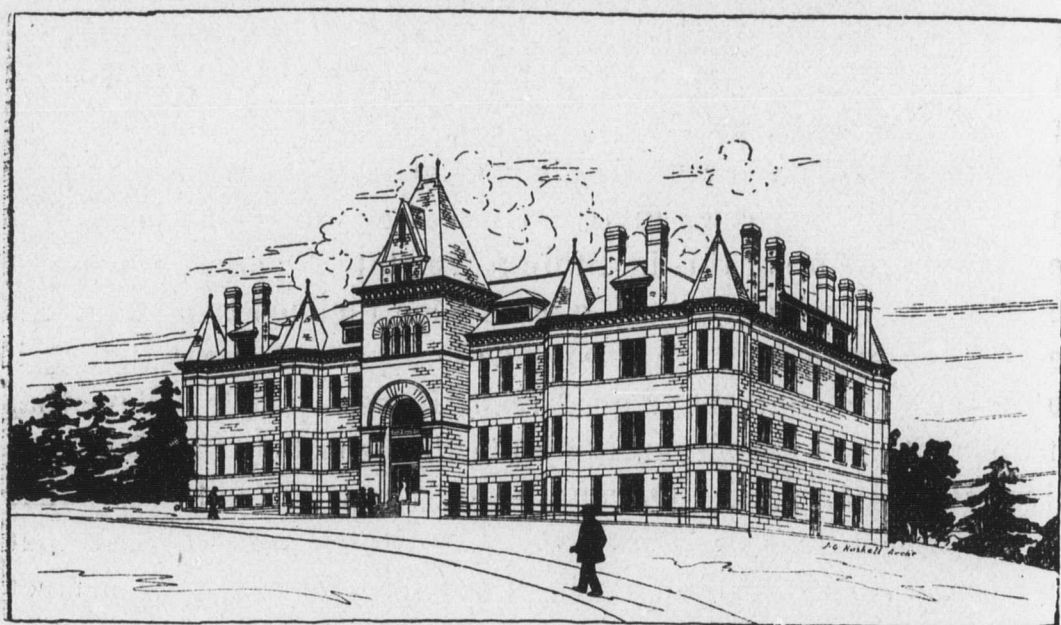
MAIN COLLEGE HALL

structure now being built, the cost of erecting these buildings has been \$313,831, and the value of equipment and apparatus, including the library, and exclusive of expenditures for the Horticultural laboratory and the barns, is very close to \$185,000. The land is valued at \$39,700, making the total investment, in round numbers, \$540,000. After that kind of an investment the government and the State of Kansas ought to have something more than a plaything, and we rather guess they have.

The portion of section 4 in the act of 1862 endowing agricultural colleges, referring to what shall be taught in these various colleges, says: "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agricul-

treat them as well as Kansas and make provision for them, but its dollars to doughnuts that there is not another agricultural college in the whole country as thoroughly appreciated by those it serves as is the Kansas school. The total enrolment this year will reach fifteen hundred. This is an attendance much larger than that shown by any other state, and although the College has other departments than the agricultural, the percentage of men taking this course is larger than in any other similar school.

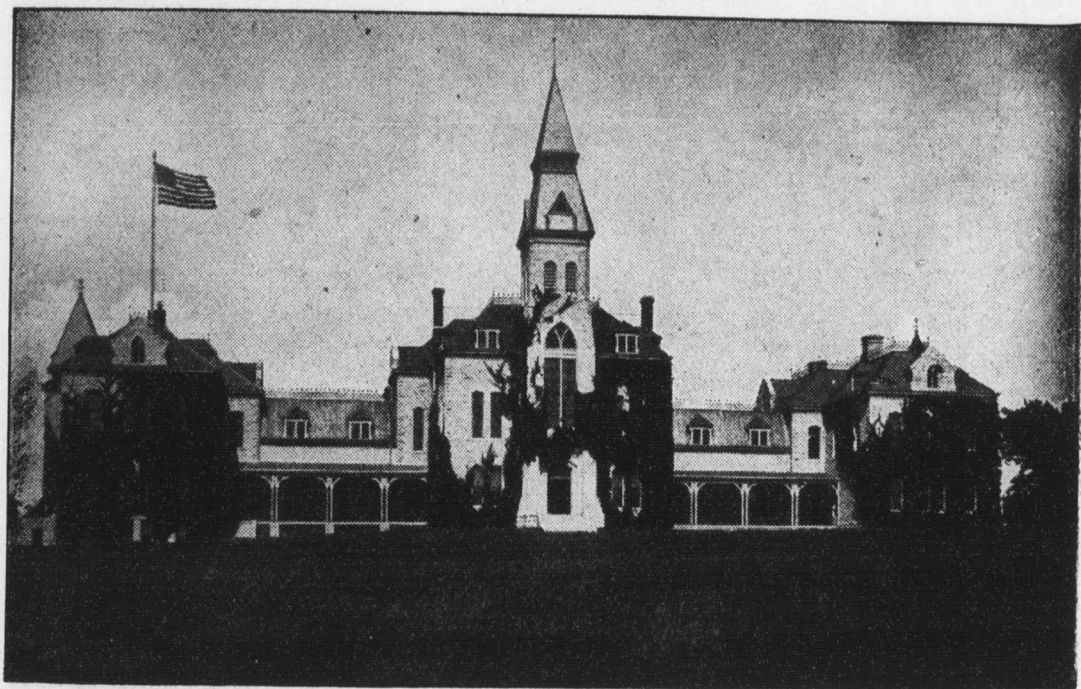
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structure now being built, the cost of erecting these buildings has been \$313,831, and the value of equipment and apparatus, including the library, and exclusive of expenditures for the Horticultural laboratory and the barns, is very close to \$185,000. The land is valued at \$39,700, making the total investment, in round numbers, \$540,000. After that kind of an investment the government and the State of Kansas ought to have something more than a plaything, and we rather guess they have.

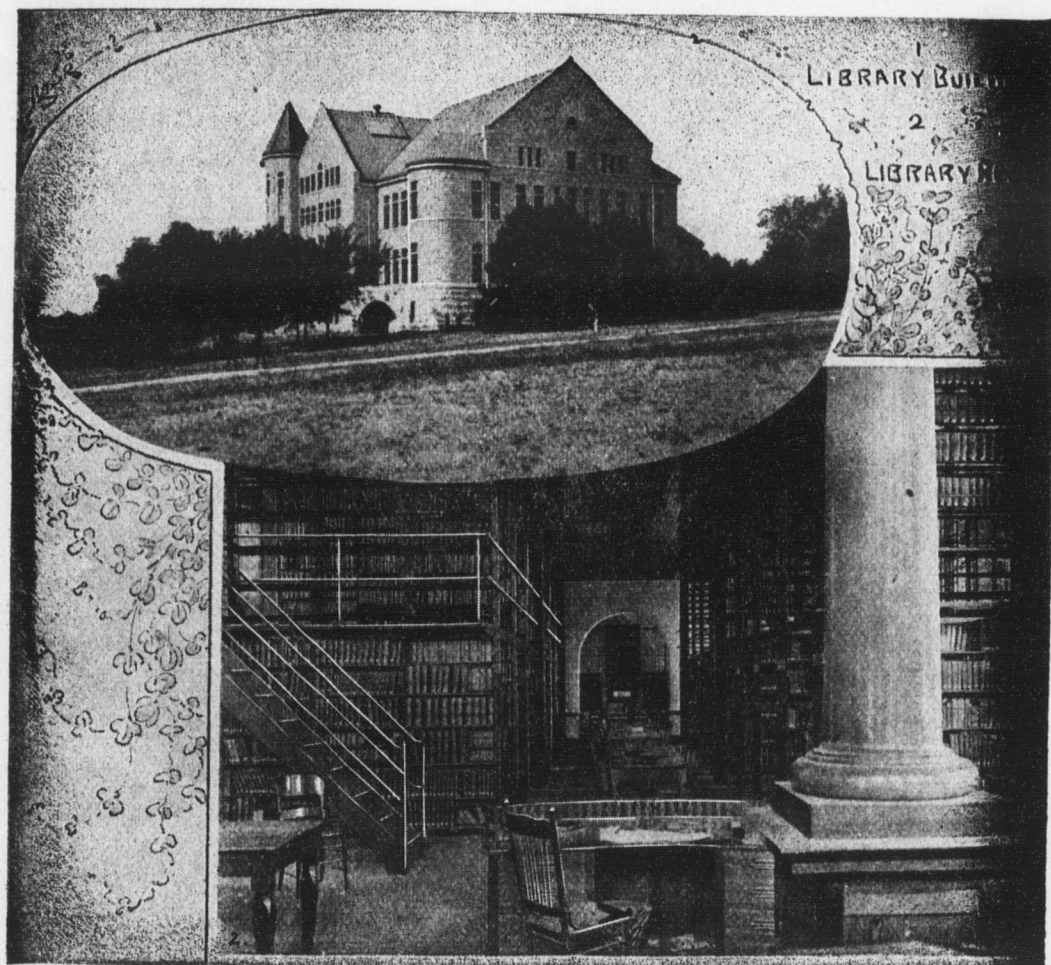
The portion of section 4 in the act of 1862 endowing agricultural colleges, referring to what shall be taught in these various colleges, says: "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agricul-

ture and the mechanic arts in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." That is a pretty broad field from which the Boards of Regents of the several states have the privilege of framing their courses, and the Kansas Board, being progressive, two years ago adopted courses of study as follows: Agriculture, Domestic Science, Mechanical Engineering, Electrical Engineering, and General Science. They framed four-year courses along these lines, but in addition adopted a short course in agriculture for young men, consisting of two winter terms of twelve weeks each, and a short course in domestic science for young women running through two fall terms of twelve weeks each. Also, the new buildings and equipment for dairying made it possible for the Board to very much strengthen the twelve weeks' course in that department.

The Kansas State Agricultural College is preëminently an industrial school, and the training afforded in each of the departments is not only thorough, but strictly practical. The majority of people who have never visited an agricultural or industrial school doubtless imagine that the female students follow principally the arduous occupation of dressing dolls and learning to operate toy gasoline stoves; that the males play with pin wheels and scroll saws; and these people would never think for a moment of visiting an institution of this kind in the hope of seeing something worth while in the way of modern industrial progress. If there were no foundry in Manhattan they would run all over the State to find one, forgetting that the Agricultural College has one of the most complete in the West. They would never dream of finding a machine shop here fitted with all kinds of expensive iron-working lathes and other machinery—the finest machine-shops west of Perdue, Ind.—that by means of blacksmith shop, foundry and machine-shop the students here manufacture lathes, forges, gasoline engines, and the finest iron, steel and wood-working tools turned out in the West. When the young men finish here they are practical foundrymen and machinest. In the wood-working department, where, by the way, every bench is taken, there is a full complement of tools and machinery and the students are taken all along the line from the simplest problems in carpentry to the manufacture of furniture. Some of the finest pieces of

cabinet-work in the College library and other buildings are the handiwork of students in this department.

One of the most interesting features of the College work is carried on in the Domestic Science building, a handsome structure 70 x 84 feet, two stories and basement. Here is where young women are trained in the arts which render divorce suits less frequent—although this object is not specifically mentioned in the



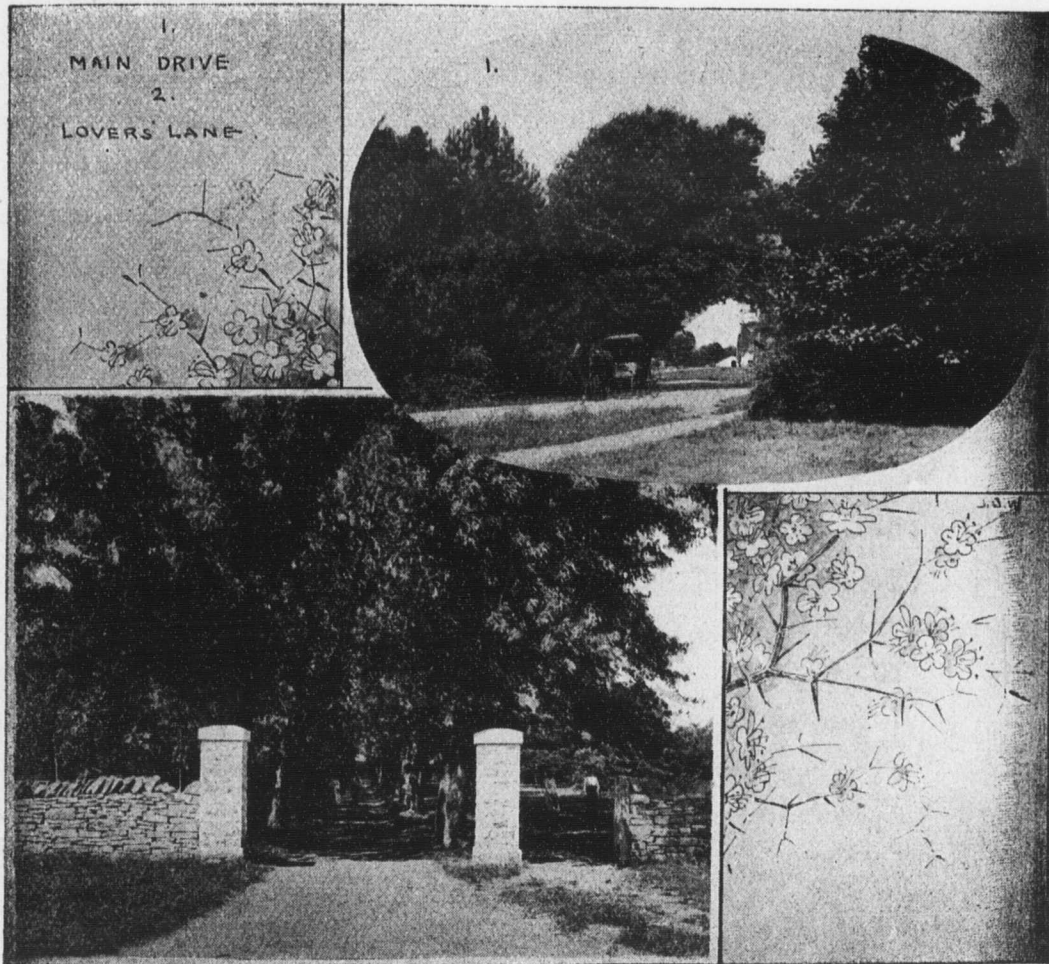
College catalogue. That publication says, "The first floor contains office, lecture-rooms and laboratories for the Department of Domestic Science," and that "the second floor is occupied by the Department of Domestic Art," all of which the writer saw; but to be plain about it, he also saw one of the finest of ordinary kitchens with numerous gas ranges or cooking-stoves, where the young women roll their sleeves up above their dimpled elbows and learn how to cook and be good housewives. Up-stairs they sew—learn how to use the thimble, needle and thread and sewing-machine that they may be able to run dressmaking or millinery establish-

ments, or if need be patch hubby's trousers. It is but fair to say, however, that a large number of young women graduates have become teachers in similar colleges elsewhere. But that's the way with the Kansas State Agricultural College all through; it teaches young men and young women to work, to become self-reliant, to be able to run up against the sharp corners of life without receiving a fatal puncture.

But, of course, it's not all actual labor with the students. There are the laboratories, the lecture-rooms and the libraries for dovetailing the theoretical with the practical. Each department has its special library, but the main library (and as a whole the library forms one of the most important adjuncts to classroom instruction) has its home in the Library and Agricultural Science Hall. This building is three and four stories and cost \$57,750, and an appropriation of \$10,000 has been made available next year for an addition. The library has, in modern racks, 43,000 volumes devoted to agriculture, dairying, science, literature, commerce, and general education—one of the largest and finest libraries in Kansas. In the same building with the library and reading-rooms are offices, class rooms and laboratories for the Departments of Botany and Entomology, a class room for the Department of History and Economics, general museum, where the prairie-dog and the antelope are incidents in the collection of stuffed animal creation, and where a collection of eggs show capabilities ranging all the way from those of the humming-bird to the ostrich. There is also a complete botanical display, and all in all the collections in the building are perhaps not surpassed in the State. Down stairs, before we leave the library building, we are told the various literary societies have their rendezvous.

A visit to the gymnasium building—the girls' gymnasium—discloses a drill room 45 x 72 feet, big enough for basket-ball and other indoor sports, and an equipment throughout complete, including class rooms, cloak-rooms, dressing-rooms, ten bath rooms, offices, etc. Near this building is the heat-and-power plant containing five sixty horse power boilers and an hundred horse-power boiler which, in addition to furnishing heat for the various buildings, operate a one hundred horse power direct-coupled engine and a forty horse-power engine of same pattern for driving the two dynamos. The dynamos run twenty arc and twenty-six hundred eighty incandescent lights.

The Military Department holds forth in a two-story building, 46 x 96 feet in size, which is fitted below for an armory and drill room and office of Military Department and also dressing and bath rooms for the various athletic teams. There are four companies of militia, the battalion numbering over four hundred, and an artillery company is now being organized to take care of the overflow. The military equipment and apparatus of the school is



valued at \$8,341, which includes two three-inch guns. The armory building also contains, on the second floor, the class rooms, laboratories, offices and museum of the Veterinary Department, which is very much alive and one of the most important departments of the College. It is from the Veterinary Department of the Experiment Station that the College is sending out thousands of doses of blackleg vaccine monthly at one cent per dose, while the Pasteur companies are charging fifteen cents per dose for the same thing.

The new Chemistry and Physics building, mentioned above,

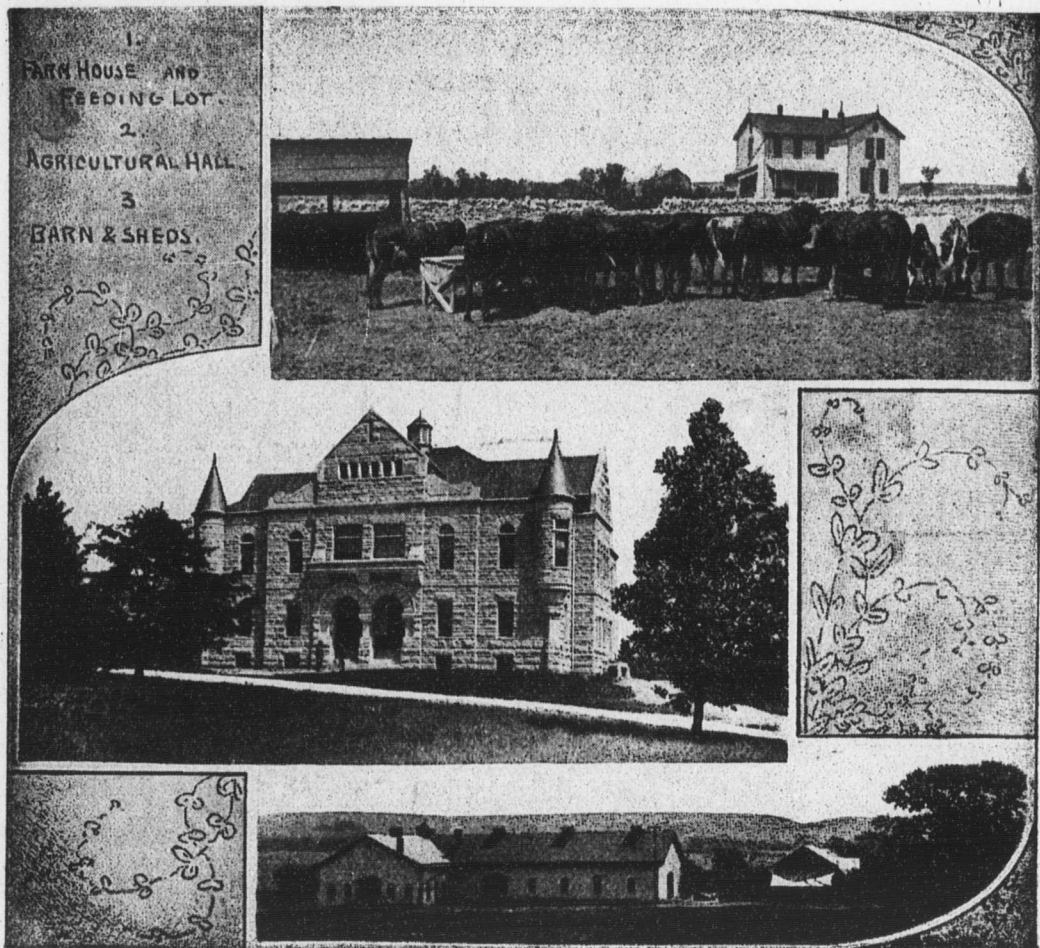
will be, when completed next year, one of the finest and most interesting of the group of College structures. In size it will be 100 x 175 feet, three stories including basement. The contracts for construction call for an expenditure of about \$63,000, and the remainder of the \$70,000 appropriated will be used for equipment. This department, next to the Library and Main College building, will prove very interesting to those who visit the school in the future.

The Main College building, naturally, is the largest of the group. It is here that is found the chapel, with a seating capacity of six hundred fifty, the offices of the President and Secretary, cloak-rooms, studies, post-office, and offices and class rooms of the departments of Drawing, Music, Physics and Electrical Engineering, Mathematics, Oratory, English, and Printing. The value of the apparatus in this building alone is itemized as follows: Executive, \$5,044; drawing, \$2,699; music, \$1,244; physics and electrical engineering, \$4,366; mathematics, \$1,679; oratory, \$45; English, \$68; printing, \$2,590.

And now, after all the tortuous winding, we come to the Agricultural Department, which after all said and done is the most important of the entire institution—at least so considered by the majority of Kansas people, including the President of the College and the Board of Regents, who have directed their energies toward making the Agricultural Department of the Kansas College one of the most effective in the United States. Although his experience as an educator prior to assuming the Presidency of the College would not indicate as much, it is a fact nevertheless that Pres. E. R. Nichols was raised on a farm and is naturally inclined to be partial to the task of turning out of this school expert practical farmers and dairymen. So earnest is he in this desire that he likes to hold his students in this department four years instead of only for the short term mentioned above, whenever it is practicable for the student to remain. The fact is, nearly every department of the College has its bearing, directly or indirectly, on the Agricultural Department, and, as before stated, the number of students entering the College with the purpose of finishing this course is greater than in any other department and larger than has ever been recorded in any other school in this country. During the past two years the number of students at the Kansas State Agricultural College has been rapidly increasing. Last

year the fall attendance reached nine hundred twenty-seven and the total enrolment one thousand three hundred twenty-one, while the present year one thousand will be the figure for the fall term and one thousand five hundred the total for the year. This is partly accounted for by the addition of the blooded stock or stock-judging department.

It will be interesting to note the studies of the Agriculture



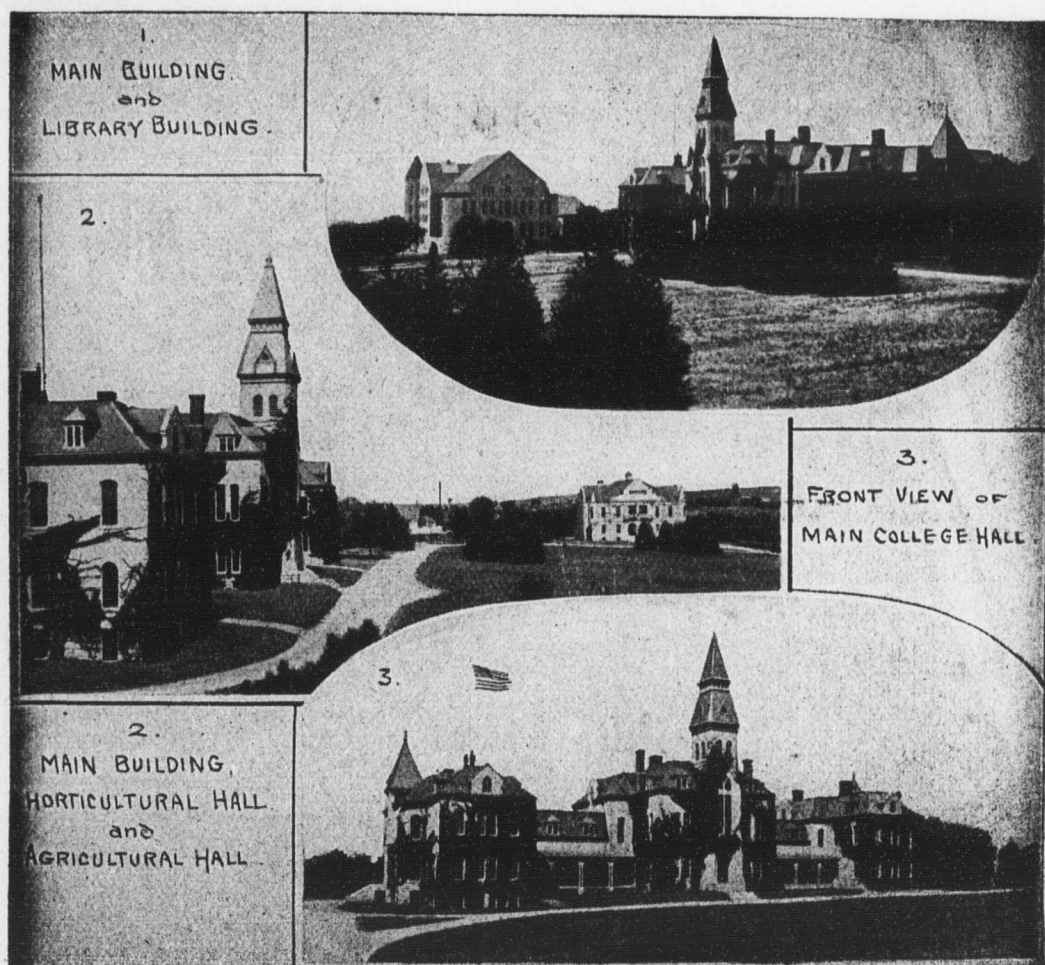
Course. The figures following each study indicate the number of terms each subject is taught, a term being twelve weeks, five recitations per week: Botany two, physiology one, zoölogy one, entomology one, bacteriology one, geology one, physics three, chemistry three, agriculture nine, horticulture three, veterinary science three, mathematics five, drawing three, English five, oratory two, history and economics four. The sciences mentioned in the list were evidently placed in the course by the Board of Regents with the understanding that they are the foundations upon which agriculture rests and hence essential to a proper apprecia-

tion of the subject. It should be noted in passing, that all the young men, whatever course they select, have one term of agriculture, including crop production and stock judging, as well as three terms of shop work, while all young women have one term of cooking and three terms of sewing. Every young man entering the Agricultural College has at least one term of agriculture.

Upon being asked concerning the average number of students in the different courses, President Nichols furnished the writer the following statement: "Assuming that the first-year student would select courses in the same ratio as the second-, third- and fourth-year students did last year, the students in the different courses would be as follows: Men, total, 955; in agriculture 363 in engineering 308, in general science 285; per cent in agriculture 37.9, per cent in engineering 32.3. Women, total, 366; in domestic science 282, in general science 84; per cent in domestic science 77. Men and women, total, 1321; in agriculture 363, in engineering 308, in domestic science 282, in general science 369; per cent in technical courses, 72.1." This shows a much higher per cent of students in agriculture than exhibited by the colleges of Indiana, Iowa, Oklahoma, and South Dakota, and doubtless by Missouri, Illinois, Wisconsin, Minnesota, and Nebraska, but in the latter states the colleges are a part of the universities and it is impossible to make a comparison. The agricultural per cent in the Kansas College is very much greater than appears, because there are so many more women in attendance here than in the other states. All the sciences in the agricultural course, as well as in the other courses, are taught by the laboratory method, and, in addition to the practice work, each student works one hour each day under skilled instructors and with modern tools. The student is thus kept in touch with work and educated to work rather than away from work.

Since the Board of Regents two years ago adopted the short courses in agriculture and dairying of two winter terms of twelve weeks each, the number of students in these departments has greatly increased. These courses are popular, because, while the student cannot expect to become as proficient as in a four-years' course, he attains a fair preparation without being forced to an expense which perhaps he could ill afford. The College is splendidly equipped for actual experimental work in agriculture and dairying. Agricultural Hall, 90x95 feet, two stories and basement,

contains not only offices, class rooms and laboratories for this department, but is thoroughly equipped with improved modern machinery for butter and cheese making, milk testing, etc. The Dairy Department will hereafter be in operation the year round, the Continental Creamery Company, of Topeka, who until lately had conducted a skimming station at Manhattan, having evacuated the field out of consideration for the good of the College.

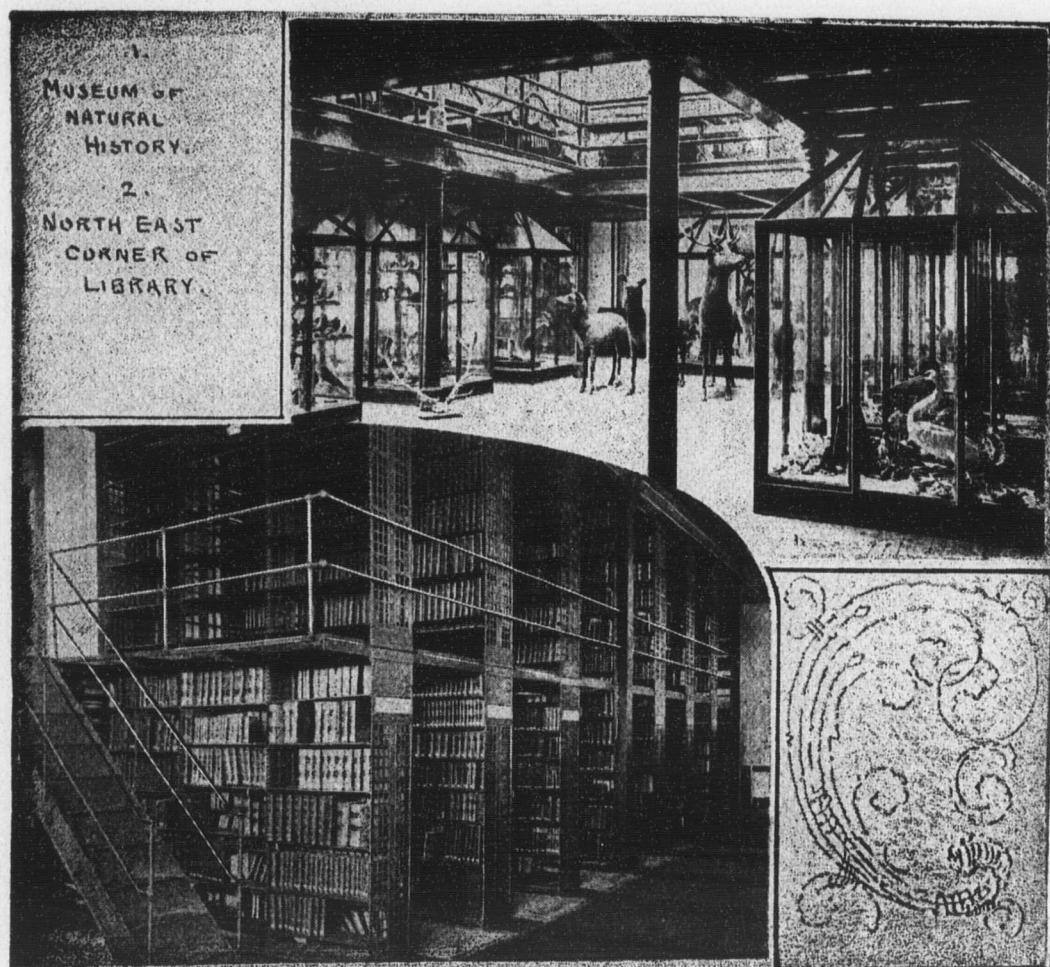


Over \$25,000 worth of apparatus devoted to agriculture is in daily use, and to this should be added \$5,000 worth of blooded stock recently purchased. Horticultural Hall is an ample one-story structure, which has been equipped at a cost of \$18,879. It contains a great display of apples, grapes, pears, peaches, plums and other fruits in wax, samples of woods, seeds, etc. Connected with this building are the greenhouses, where the practical features of floriculture are taught, but while these greenhouses seem large they should be replaced with new ones as soon as practicable. They are old and are becoming inadequate. The horticultural

tural laboratory has five propagating houses and an insectary.

In seed breeding the Kansas State Agricultural College is making rapid progress. To illustrate what is being accomplished along the line of seed breeding, reference may be made to their experiments with wheat. The Department of Botany has fifteen acres of experimental wheat, of which five acres is divided into one-tenth-acre plots and devoted to experimental yield tests. The wheats grown in these plots are of twenty varieties and are the result of four years of seed selection. In addition to this they have ten acres of smaller plots planted in cross-bred wheats and their descendants, which have been grown here for the past four years. During this time many kinds of wheat have been discarded by the College as unsuitable, but they are still experimenting with one hundred sixty-six varieties of cross-bred wheat. On the last-named plot of ground there are growing sixty-eight varieties of pure-bred wheats, which are the result of seed selection during previous years, and there are one hundred seventy-seven kinds of Russian, Roumanian, Bothnian, Bulgarian and Algerian wheats that have been imported by the United States department of agriculture and which are being experimented with by this College on a coöperative contract with Mr. M. A. Carleton, the cerealist of the U. S. department. From these imported wheats it is hoped to secure more advantageous varieties for growing in the less favorable wheat-growing regions of Kansas and for crossing with local wheat. From the same source the Kansas College has also obtained twenty-seven varieties of so-called macaroni wheats which were imported from the countries mentioned. These are particularly noted for their rust-resisting and drought-resisting qualities and for the large amount of gluten they contain. Although used in Europe for bread, the inclination among American millers is to use the more starchy wheats for flour, and therefore the principal market value of these wheats will grow out of their use in the production of macaroni, of which there are now about fifteen million pounds imported to this country annually. Expert Carleton assures the Kansas department that it can guarantee a terminal market for every bushel of macaroni wheat that can be raised. At present the main difficulty is to induce middlemen to buy the cereal outright, but it is believed that it will be only a short time until this product will sell in the local markets. These macaroni wheats will not only live in but absolutely require

a dry climate, and it is from this fact that it is hoped to introduce them extensively in the western part of Kansas. By their use it is also expected to improve the wheats of eastern Kansas, so far as resistance of rust and drought is concerned, by crossing. The hope of the Kansas Station is to produce by wheat breeding a large-yielding, drought-resisting, rust-resistant wheat of No. 1 milling quality, and the object in growing so many varieties is to



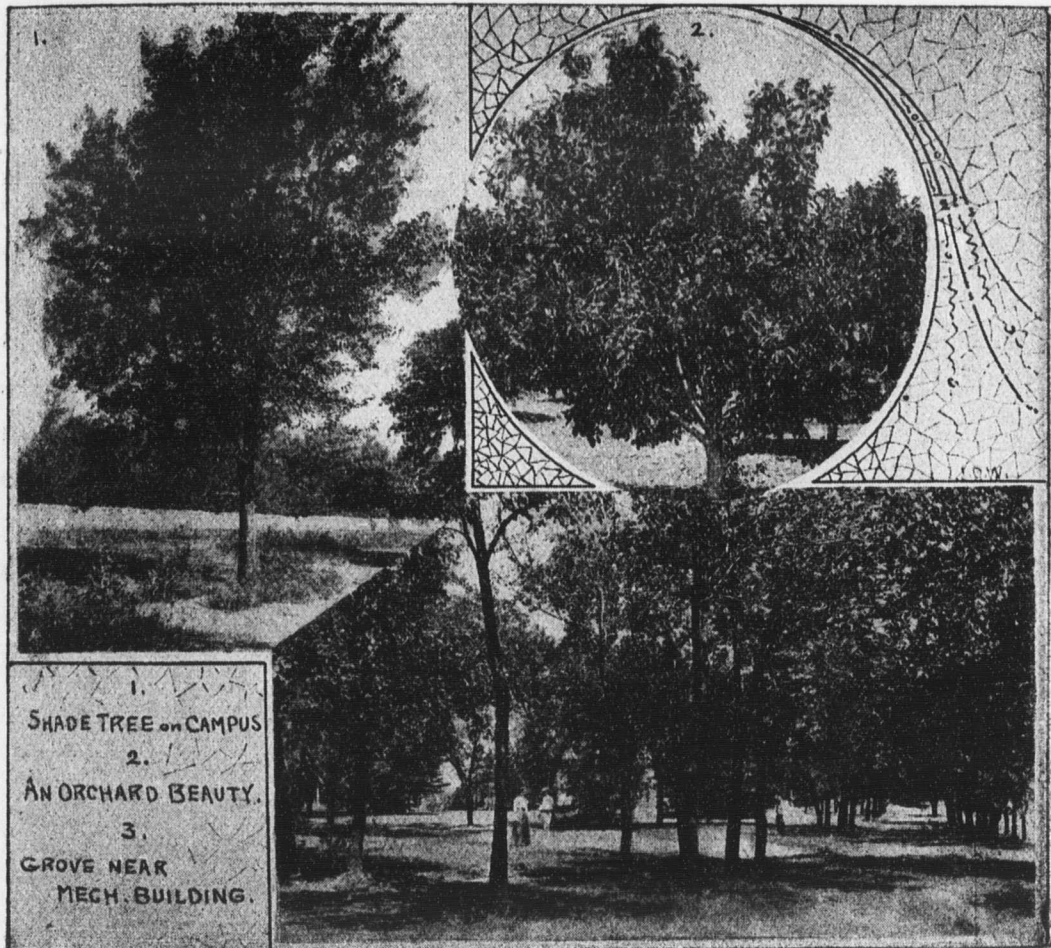
have an abundance of material for possible crosses through which this result may be attained. But inasmuch as only one wheat crop per year is grown, this realization becomes subject to time. They say at the College that the work of crossing the wheat is a very slow process. A good worker, for example, can cross about seven head per hour, and on these he crosses only ten or twelve flowers in the middle of the head, discarding the flowers on the upper and lower part and also dispensing with the middle flower of each spikelet (the spikelets have each a cluster of three flowers), which is usually small and inferior. There are some wheats,

called club wheats, which are inclined to produce a more complete middle flower on each spikelet. This means more kernels to the head. These wheats are grown chiefly on the Pacific coast and may partly account for the large yields in that region. It is regarded possible by the Kansas Agricultural College experts that the local wheat yield can be increased by arousing our inferior middle flower to fuller development by crossing with the Pacific coast wheats mentioned. The College has just received a number of the very best of these from the Washington and California experiment stations, and this task will be undertaken. One of the faults of the best wheats we have in this country is the habit of "shattering," due to the opening up of the glumes of the spikelets, allowing the wheat kernels to escape. Now, the spelts and emmers are grains very closely allied to the wheats, differing mainly in the arrangement of the spikelets on the heads and in the fact that the spikelets never shed the grain—so that threshed emmer, for instance, still has the grains tightly enclosed within the glumes. The possibility, therefore, has suggested itself of improving some of the shattering wheats, which include some of the best yielders, by crossing them with the spelts and emmers. In such case a compound cross will be necessary. That is, in one season cross will be made of valley wheat and emmer; next year the progeny of that cross will in turn be crossed with valley wheat, thus eliminating some of the undesirable features of the emmer likely to have been introduced at the first cross.

But in addition to wheat experiments the Kansas Agricultural College is working on other cereals. On the same plat are growing one hundred eighteen varieties of winter barley which have been received from various countries in the south of Europe and introduced by the United States agricultural department. Experiments are also being made with a large number of ryes and oats. Kansas is greatly in need of a large-yielding, rust-proof variety of oats. As to corn, the Station here has in hand over five hundred cross-bred varieties.

After these grains have been raised, then steps in the Chemical Department of the College. The wheat must pass through the testing laboratory to be tried for its milling and baking qualities. And the corn must take its medicine. The laboratory has analyzed over seven hundred samples of corn in order to determine the amount of nitrogen they contained, the object being to select

varieties richer in nitrogen than those now grown. The nitrogen in corn is a measure of its quantity of protein. Corn is deficient in protein for feeding, or rather fattening purposes, and farmers are compelled to purchase large quantities of linseed and cottonseed meal and other concentrated nitrogenous foods. So that to whatever extent the protein in corn can be increased the necessity of purchasing these foods will be diminished and the value of the



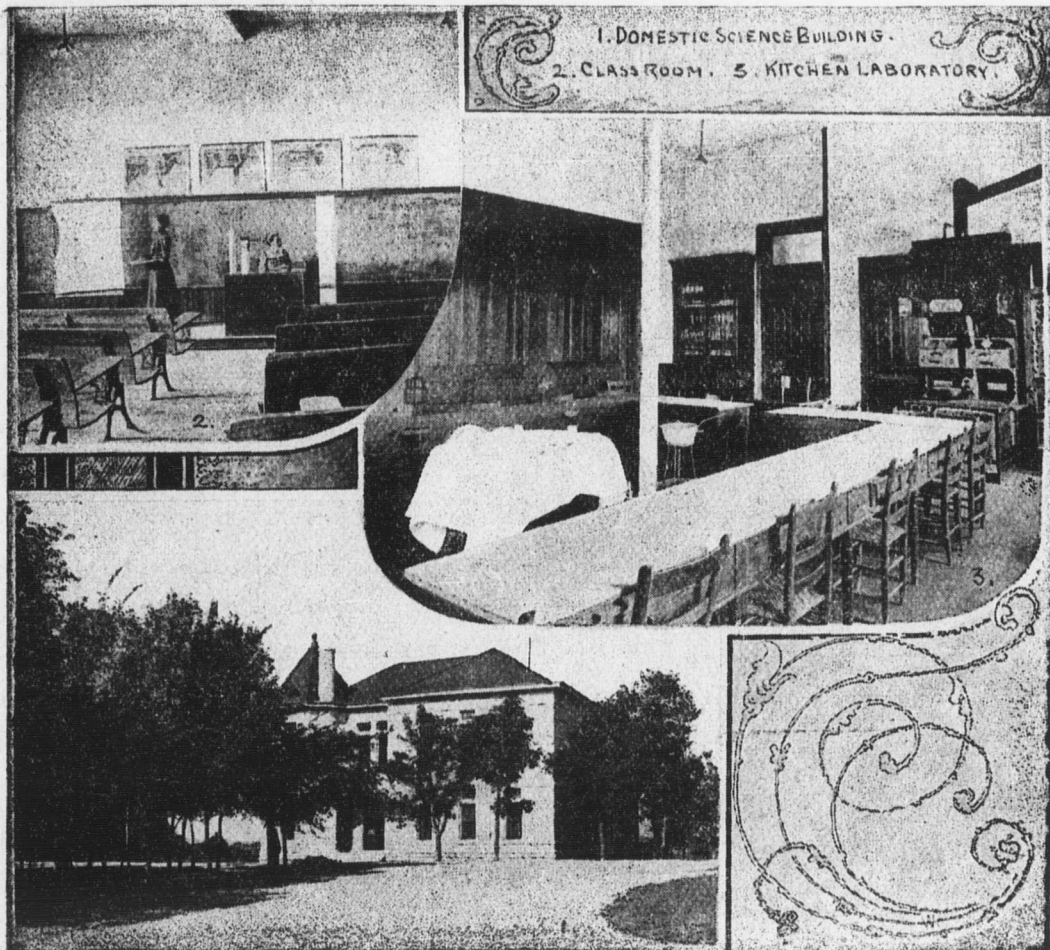
corn crop enhanced To the lay mind there would seem little difference in corn, but the Chemical Department of the Agricultural College has found great variation in its composition, the percentage of nitrogen in different varieties varying from 1.53 to 2.26, which shows that much may be done to improve the value of the crop by selecting a variety containing the highest percentage of nitrogen. A variety containing 2.26 per cent of nitrogen would possess 14 per cent of protein, while corn now averages only $10\frac{1}{2}$ per cent of the latter. Not only does this variation exist in varieties, but different ears of the same variety vary greatly in percentage of ni-

trogen. In one variety nine ears showed a variation of from 1.53 to 2.24 per cent. This was a kind which had been grown by the same farmer for thirty years without the introduction of other seed. Here, with every opportunity for the production of a fixed type, still existed a great variation in composition. Another variety, a recent cross, varied from 1.35 to 2.22 per cent. These great differences show the vast possibilities in the way of selecting seed and the value of a method by which ears rich in nitrogen might be chosen.

The department has made many attempts to determine whether the difference in specific gravity of the corn grain could be used for this purpose, but has found this is not available. The only method giving certain results is chemical analysis, and this is being applied to the five hundred varieties and crosses being grown by the Botanical Department in the hope of obtaining improved varieties. For general application by the farmer, however, it is obvious that some other means than chemical analysis must be devised. At present the only method consists in an examination of the kernels of each ear to ascertain the relative size of the germs. This is accomplished by taking a dozen or so kernels from the middle of the ear and making cross sections through the germs with a sharp knife. By comparing the size of the germ in this way ears can be chosen with considerable accuracy in which the germ is large. The value of this rests in the fact that the germs are far richer in nitrogen than the other parts of the grain. An analysis in which the whole grain contained 12.6 per cent of protein disclosed that the germs contained 21.7 per cent. The germ is also much richer in fat than the remainder of the kernel, containing about 30 per cent, while the whole grain has about 4 per cent. As fat is worth about two and a half times as much as starch in animal nutrition, the production of corn with large germs is advantageous with respect to fat as well as protein. This method of selecting seed corn is available to all and is being practiced by some farmers.

Experiments have also been made by the department to determine the digestibility of Kansas feeds. It has also been working on sugar beets, not so much with the object of introducing the industry as to prevent people from investing capital in that line in Kansas until it is determined whether or not the beets can be profitably grown. Good beets, it seems, can be grown here in

some places some years, but most of them have been poor. Irrigation makes the situation slightly more encouraging in the west part of the State, as drought in mid-summer is the principal drawback. The College has also made many experiments in circumstances affecting soil moisture—the effect of different methods of tillage and of fertilizers. Bulletins have been published giving the results and are still available to those wishing them. Study



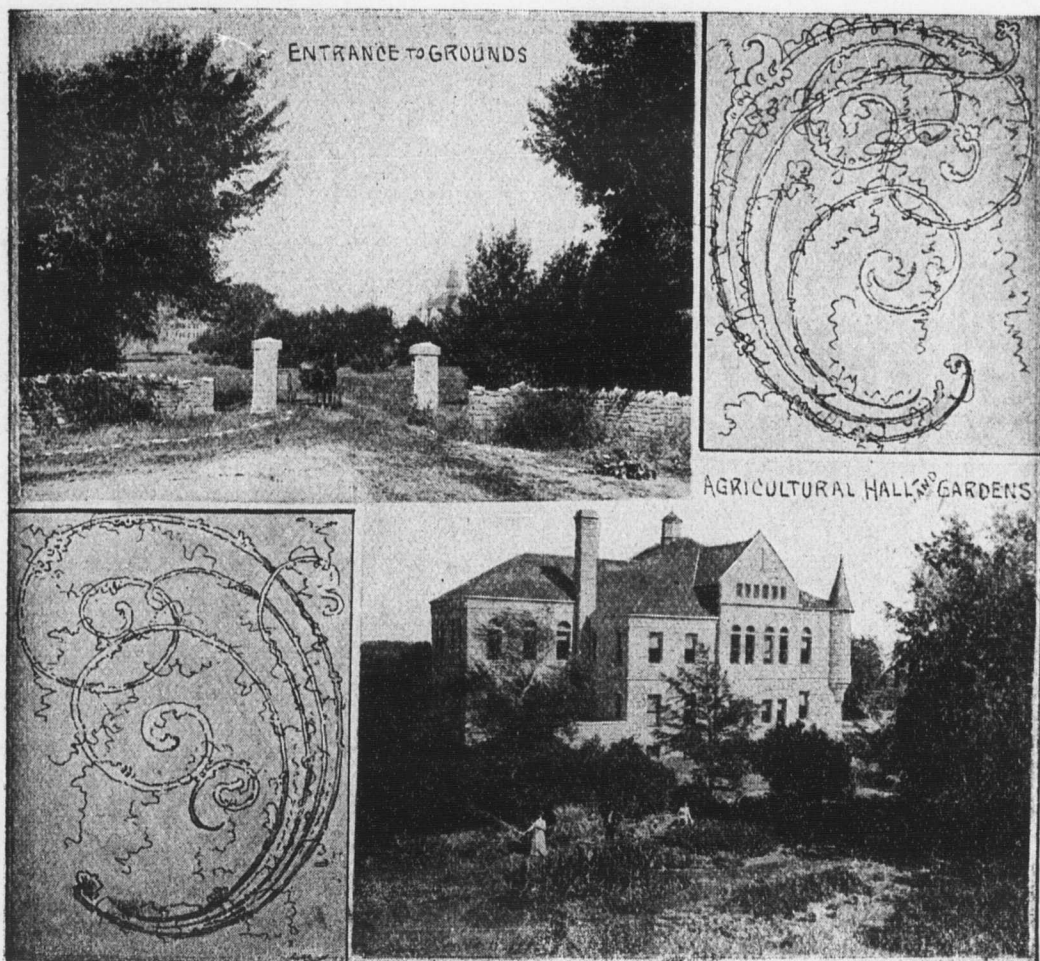
of the soil will be continued by making a series of mechanical tests and, in special cases, chemical analysis. The Station has twenty-three thousand names to which bulletins are sent, and names are added by request. It receives an average of six thousand letters and postal cards per year, and the College as a whole fifteen thousand. There is no end to the work of the College in experimental orchards and vineyards. They now have two hundred seventy-five varieties of grapes, twenty-five varieties of apples, twenty-five kinds of peaches, forty different plums, a half-dozen kinds of pears, etc. They raised a quarter of an acre of

Virginia White peanuts this year and sample bunches appear to have hanging to the roots a million nuts, more or less.

Another department that holds its head up is the Farm Department. It is proud of its live stock of various kinds. There are forty head of thoroughbred cattle, representing ten breeds, as follows: Dairy herds—Jerseys, Guernseys, Ayreshires, Holstein; beef breeds, Shorthorns, Herefords, Galloways, Polled Angus; dual purpose, Polled Durham and Red Polled. There are also sixty head of dairy cows—the so-called “scrub” herd. During February and March will occur the stock-judging feature of the College work. A building 48 x 96, provided with amphitheater seats and judges’ stand and well lighted, has been provided for this purpose. This is proving a valuable drawing card to the school. The institution has all kinds of hogs and chickens. The Farm Department planted the first package of Kafir corn ever planted in Kansas, which yielded ninety-eight bushels to the acre. Then they began to push it and there are now in Kansas over six hundred thousand acres under cultivation. On its high land the College has had but one failure of Kafir-corn in thirteen years and since beginning has raised on an average enough of it to make four hundred fifty pounds of pork annually, while the corn raised on the same land produced only four hundred pounds—and there have been three total failures of the corn crop. Another crop which was first taken up by the College and introduced is the Soy bean, which is richer than oil-meal. The College got it from Japan, where it takes the place of beefsteak, because they haven’t room for cattle. The Soy bean is the richest in muscle-producing material of any grain grown. An experiment in feeding this to hogs was made. A number was divided into two equal bunches. The bunch which had all the grain it could eat, as farmers ordinarily fatten, gained four hundred pounds, and the other, which had one-fifth Soy beans mixed with the grain, gained eight hundred pounds. It is one of the greatest drought resisting crops in existence. Another advantage is that the Soy bean enriches the soil in which it grows. One of the College students planted one hundred acres of the beans in the spring and in the fall put in two hundred acres of wheat, drilling across the Soy-bean ground, and raised five bushels to the acre more where the beans had been grown. The same effect is noticed in other crops.

Alfalfa is another of the Farm Department’s leading crops.

They have found that by cultivating with the disc harrow the yield can be increased from twenty-five to one hundred per cent. Disc harrowing is done in March, before the crop starts and just after each cutting. The effect is the same as in cultivating corn. Then they have tried the value of alfalfa for fattening hogs. The result was seven hundred seventy-six pounds of pork from one acre of alfalfa pasture. By feeding dry alfalfa hay with grain



they got results which led them to the conclusion that, at the present price of pork, alfalfa is worth \$52 per ton. A long chapter should be devoted to the Farm Department's experiments in raising "baby beef," but this has already become famous. Suffice it to say, that Soy beans and alfalfa are necessary to successfully raise baby beef, and that the baby-beef industry will become so popular that the alfalfa and Soy-bean acreage will rapidly increase in Kansas.

The Dairy Husbandry Department has already been mentioned, but it has also made some experiments that count. For example,

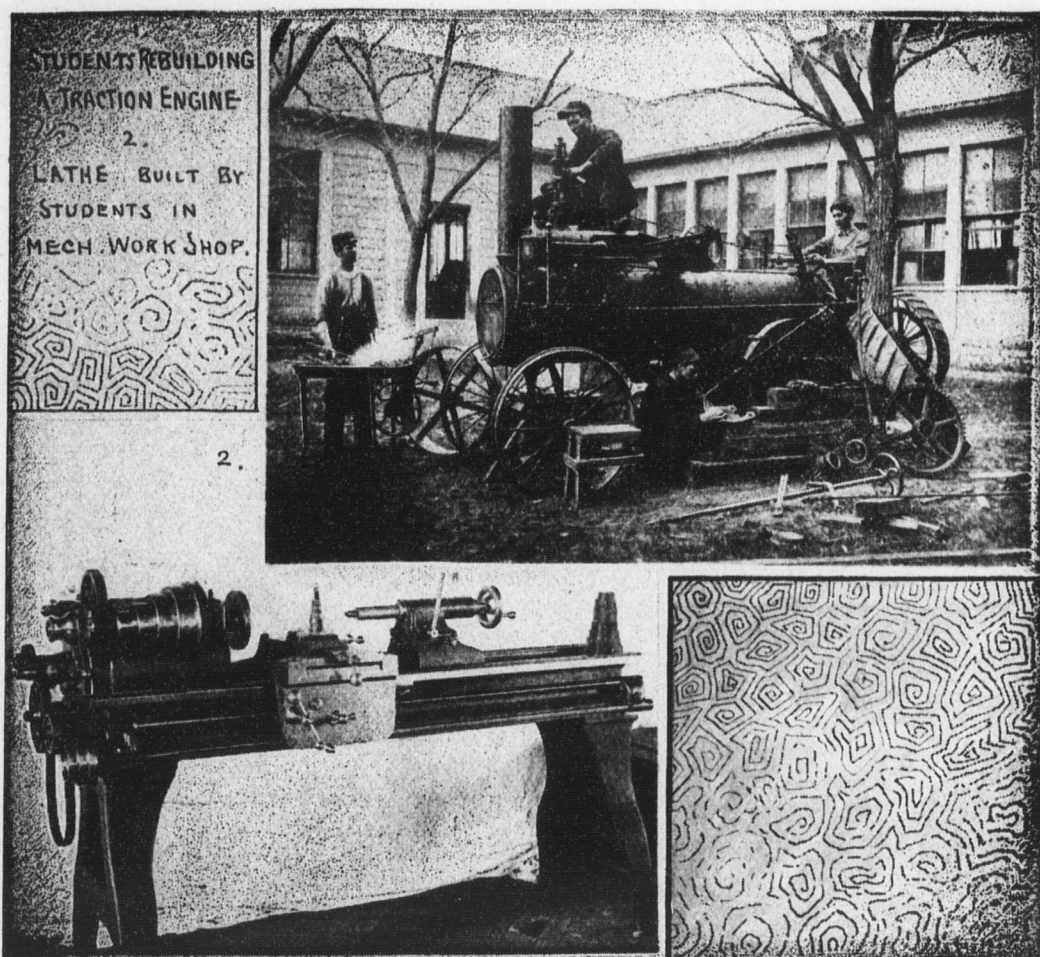
the report of State Secretary of Agriculture Coburn says that the average Kansas cow produces ninety pounds of butter annually. The Dairy Department of the College has taken the average cow (price \$30) and by good feed and care produced two hundred seventy pounds per cow. One "average cow" has produced \$75 worth of dairy goods. And this department has made test after test in fattening, etc., that are startling. Among other things they find that the so-called stock food for dairy cows is of no value when the cow is fed a balanced ration.

There are a great many other things that might be appropriately incorporated in a review of the work of the Kansas State Agricultural College, but if the reader will watch the smoke of the school, or, in other words, the press bulletins sent out regularly, he will learn more than we are able to tell here. One can but reflect, however, that in view of the vast amount of thoroughly practical educational work performed here the organization of the College Faculty must be somewhere near perfect and the guiding hand furnished by the Board of Regents a steady one. The highest ability obtainable, the brightest graduates of other schools and long-experienced instructors have been marshalled here, and the people of Kansas should feel proud of their work.

President Nichols, who has been connected with the College since 1890, but who has served as President for the past two years only, has labored untiringly for the advancement of every feature of the College work, and with most gratifying results. Under his administration as President the per cent of increase in attendance has been double, annually, of that of any previous year in the history of the school. Yet he is modest in assuming credit, pointing out that the College has always been appreciated, as shown by the large number of graduates occupying prominent positions in the United States department of agriculture and by the still larger number serving as professors and teachers in the agricultural and industrial schools, nineteen of these being young women teaching domestic science.

As an educator President Nichols has enjoyed a highly successful career. Born at Farmington, Conn., he was raised on a farm in northeastern Iowa and received his elementary education in the country schools. He graduated from the Iowa State Normal in 1882, receiving the degree of Bachelor of Didactics, and immedi-

ately thereafter became principal of the Charles City, Iowa, high school. During 1884-85 he was superintendent of the Nashua (Iowa) public schools, and having later graduated from the State University of Iowa received, in 1887, the degrees of Bachelor of Science and, in 1890, Master of Arts—the time from 1887 to 1890 having been spent as assistant professor of mathematics in that institution. In 1890 he was elected professor of physics in the



Kansas State Agricultural College, and during the year 1894-95 took advantage of leave of absence to pursue graduate work in physics and mathematics at the University of Chicago.

President Nichols is of a very practical turn of mind and never enjoys himself better than when working with machinery or inventing some mechanical contrivance. Among his inventions are an automatic switch for charging storage batteries, an anemometer, and an eight-day program clock, all of which are in successful operation at this and other institutions. President Nichols has always been an enthusiast on the subject of agricultural and

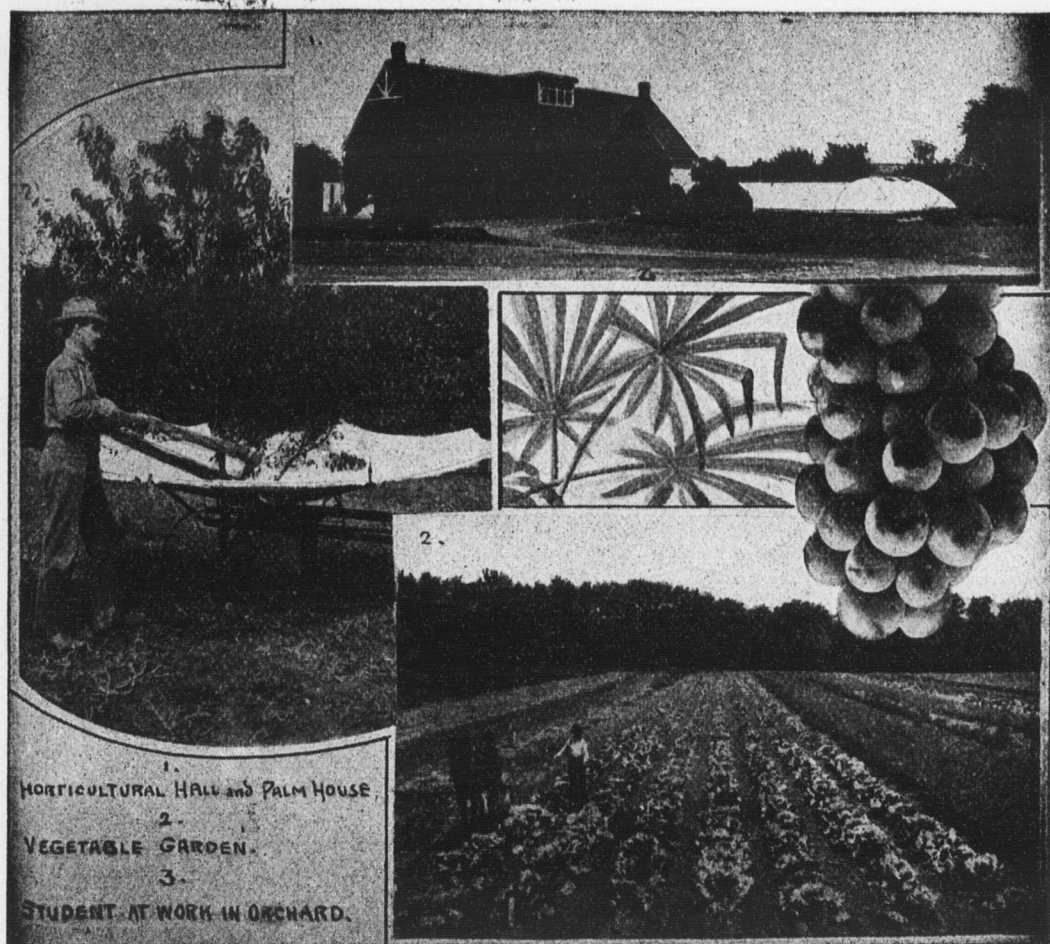
industrial education and a wisely chosen career of study and research has been the means of amply fortifying him for his present position at the head of an institution devoted to the betterment of conditions of agricultural and industrial life. He is conservative enough to be safe and sufficiently progressive to harbor the desire to see the Kansas State Agricultural College maintain the highest standard of efficiency in its adopted field.

FOUR YEARS OF DAIRYING AT THE KANSAS STATE AGRICULTURAL COLLEGE.

THE STARTING POINT.—On the 31st of December the Kansas dairy school will close the fourth year of its existence. Four years ago this school started with six special students. Classes were held in an office and the industrial work performed in a small room $12\frac{1}{2} \times 16$ in the old stone barn. The next year there were twenty-four special and nineteen regular students, making a total of forty-three. The crowded condition made it necessary to convert a grain bin into a butter room and a dressing room into a testing laboratory. Drainage was secured by boring a hole through the wooden floor and conducting the water away through an eaves spout. The boys changed their clothes in the basement of the barn, where their privileges were on a par with the cows. The milk was supplied from a herd of common cows.

MAKING THE MOST OF PRESENT OPPORTUNITIES.—The best quality of butter could not be made with the fumes of the cow stable under the butter room, but by taking special pains butter was produced that commanded as high price as any sold on the Manhattan market. Experiments were inaugurated in keeping milk sweet during the hot weather without ice. This was accomplished by constructing, over a well, a five-dollar milk house made of old fence boards. Various feeds and mixtures were tested to find the most economical ration for Kansas dairy cows. The average Kansas cow produced ninety pounds of butter per annum. The herd mentioned above, which was no better than the average Kansas herd, produced two hundred seventy pounds of butter per cow per annum. The best cow produced four hundred fifty-seven pounds of butter, which is said to be the best showing of any common cow on record in the United States.

This herd is being graded up by a pure-blood Guernsey bull. Experiments with feeding skim-milk to calves were undertaken, which showed that good thrifty calves that would gain from one and one half to two pounds per day could be raised on skim-milk by the addition of a little corn or Kafir-corn and a little hay. Bulletins have been published on the following subjects: "Feed and Care of the Dairy Cow," "Keeping Milk in Summer," "Milk-



ing Scrub Cows," "Shelled Corn Compared with Corn Chop for Young Calves," "Get Ready for the Drought," "Experience in Soiling and Pasturing Cows," "Skim-milk Calves," "Kafir corn vs. Good Butter," "Condimental Stock Foods for Dairy Cows," "Dried Blood as a Tonic for Young Calves," "Three Ways of Feeding Milk to Calves," "Skim-milk Calves in the Feed Lot," "Sorghum Pasture for Dairy Cows." Besides bulletins, numerous articles for farm and dairy papers and subjects for farmers' institute talks have come as a result of the work done along dairy lines. Since July, 1898, the dairy page of the *Kansas Farmer* (fifteen hun-

dred to two thousand words weekly) has been edited from the College.

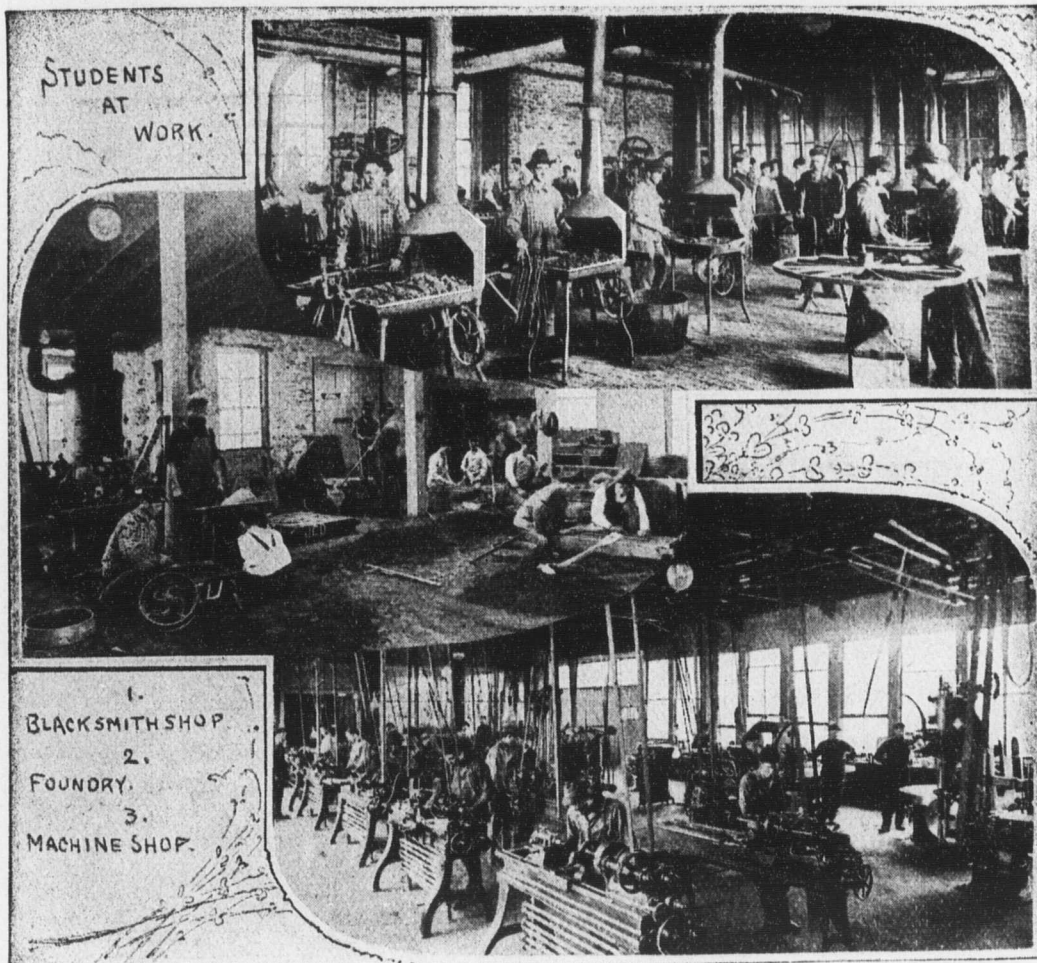
AN IMPERATIVE NEED SUPPLIED.—In 1899 the Kansas legislature, realizing the needs of both the College and State, appropriated \$25,000 to her Agricultural College for an agricultural building, in which ample provision was to be made for the accommodation of dairy students. The ground floor (100 x 105) is well fitted up with butter, cheese and testing rooms, finished in opalite, together with cold storage rooms. An elevator connects this floor with the cheese curing rooms in the basement. In addition to this a \$6000 appropriation was allowed for dairy equipment and \$3000 for a dairy barn and the purchase of a dairy herd. These appropriations gave to Kansas one of the best equipped dairy schools in the United States.

INTRODUCING BLOODED CATTLE.—The last legislature appropriated to the Agricultural College \$5000 per year for two years for the purpose of purchasing pure-blood cattle. The College now has in its possession ten breeds of cattle—four dairy, two general purpose and four beef. Each cow in these breeds will be milked in the dairy herd and accurate accounts kept of feed consumed and milk and butter-fat produced. Eight of these cows are being milked at the present time. Comparisons are being made, not only between different breeds, but between pure bloods, grades and common cows, all of which will be used extensively in demonstrating dairy form and type at the judging school.

DAIRY HUSBANDRY MADE A SEPARATE DEPARTMENT.—At the July (1901) meeting, the Board of Regents created the chair of Dairy Husbandry. The agricultural work of the institution had grown to such an extent that it was too much for one man to handle. Furthermore, the beef men of the State demanded that the College give more attention to beef stock and crop production and the dairyman demanded more attention be given to dairying. The division of the work enables each department to push its work to the utmost and better meet the various demands of the agricultural interests of the State.

SCOPE OF THE DAIRY WORK ENLARGED.—A committee of three was appointed at the September meeting of the Board of Regents to make necessary arrangements to run the creamery throughout the entire year. The Continental Creamery Company kindly consented to abandon the Manhattan territory

and give the milk to the College. Mr. Ed. H. Webster, a graduate of both the Kansas and Iowa agricultural colleges, who took the highest score for the best tub of butter at the National Creamery Buttermakers' Association, has been employed as instructor in butter making and cheese making. The College creamery will be open to apprentices to the number of twenty. Seven students are now in the course, with other applications



coming in rapidly. Original investigations will be made both in butter making and cheese making. Special attention will be given to handling milk and cream to secure the best quality of butter during the hot summer months.

SOME OF THE FRUITS.—The classes have enlarged until last year there were seventy-two dairy short-course, thirteen farmers' short-course and twenty-four regular students, a total of one hundred nine for the year. There have been a total of one hundred sixty-two dairy short-course students for the four years. Every one of these young men who could be recom-

mended have secured good positions. One of our dairy students has one-fifth interest in a two-hundred-fifty cow dairy in Nebraska, another is secretary of one of the largest creamery companies in the State, several have good positions as butter makers, and a large number are successful operators of skimming stations. One Kansas creamery company employs over fifty graduates of our dairy school and are calling for more of the same calibre. Notwithstanding the large number who are taking the dairy work, the department is unable to supply the demand for educated dairymen.

FUTURE PROSPECTS.—Although considerable growth has been made along dairy lines, the work is still in its infancy. Much impetus has been given by the introduction of blooded cattle, by running the creamery work through the entire year, providing for dairy apprentices, and by the addition of new instructors. This will enable a greater number of young men to reap the benefits offered by the College and at the same time enable the department to better meet the demands made upon it for trained men and for original investigations along dairy lines. D. H. OTIS.

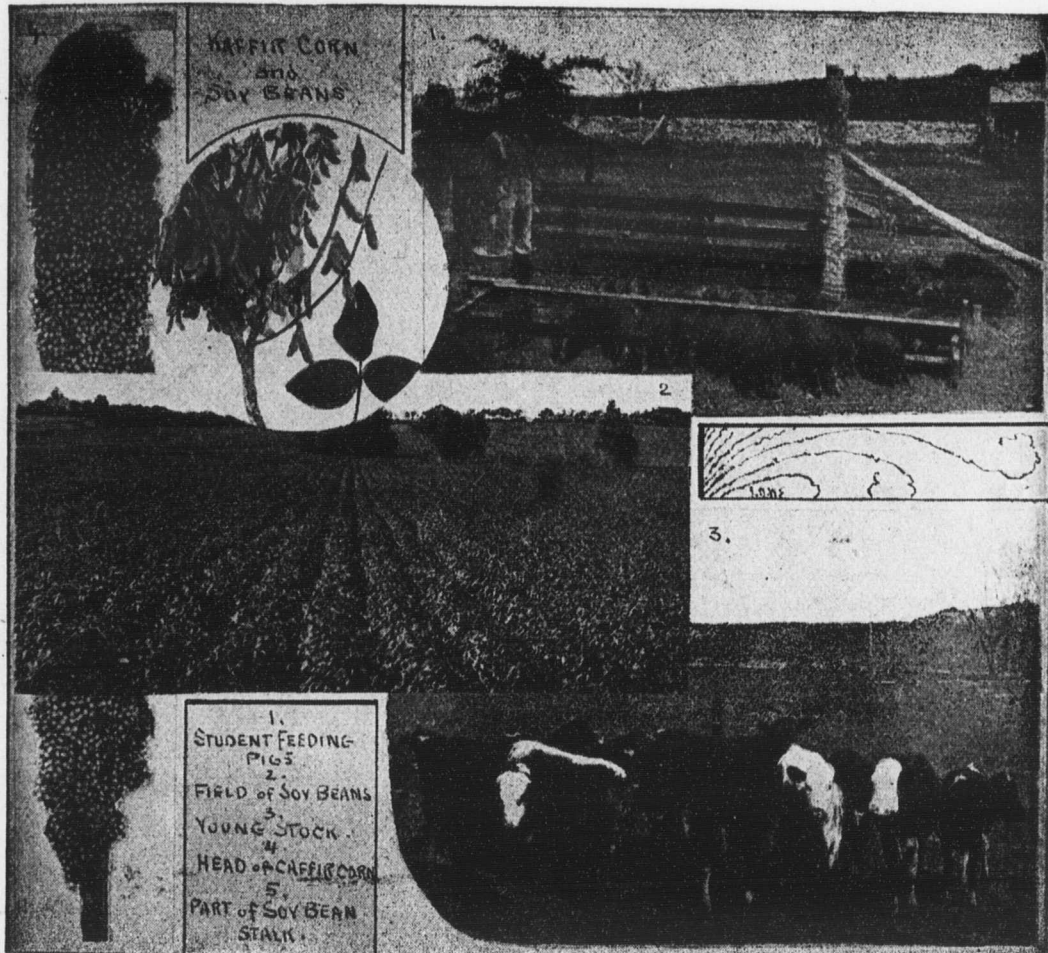
RECENT PROGRESS IN THE FARM WORK OF THE COLLEGE.

IN NOVEMBER Regents McDowell and Satterthwaite purchased for the College a pair of pure-bred Percheron mares, valued at \$2,000. They make what is probably the best draft team west of the Missouri river. The College is in its thirty-ninth year and has never before owned even a good, ordinary farm team.

In the last ten months the College has secured, by gift and purchase, forty head of pure bred cattle. Ten breeds are represented—Aberdeen-Angus, Galloway, Hereford and Shorthorn for beef, Ayrshire, Guernsey, Jersey and Holstein for milk, and the Polled Durham and Red Polled as dual purpose cattle. Eight of our best pure-bred cattle were donated outright by generous Kansas breeders, and in every case of purchase breeders have made generous reductions in price, frequently amounting to half the value of the animal. The legislature gave the College \$5,000 for the purchase of pure-bred cattle, and by the help of the gifts and reductions in price cattle worth \$10,000 have been secured. In every case, whether the animal was given or sold to the College,

the College representatives were given the choice of the herd, and among the cattle now owned by the College are three prize winners from the Pan-American and one from the Kansas City Expositions.

The College has secured, since July 1, representatives of four breeds of swine—Berkshire, Duroc-Jersey, Poland China, and Tamworth. Twenty-five of the best Kansas breeders of hogs



have donated pure-bred pigs to the College, each breeder sending a pig which represents his ideal of what Kansas breeders and farmers should raise to make the most money. This will afford our students this winter a rare opportunity to study the ideals of our most successful breeders.

Since September 1 the College has secured by donation and purchase pure-bred chickens of six breeds and the trio of Pekin ducks that won first prize at the State show last winter. A Buff Rock cock donated to the College won first prize two years in succession at the State show.

During the past summer the south wing of the barn was remodeled into a stock-judging room forty-eight by ninety-six feet, steam heated, well lighted with both top and side lights, and seats for three hundred.

A model shed, two hundred twenty feet in length, for pure bred bulls has been built and also five colony poultry houses.

The securing of choice representatives of leading breeds of horses, cattle, swine and poultry enables the College to introduce this winter into the farm course good work in stock judging for the first time in the history of the College, and six weeks will be given to this work during the winter term, and the regular corps of teachers will be assisted by some of the best stock judges in the State.

In July the Farm Department was divided and the work in dairying made an independent department. This enables each man connected with the farm work of the College to devote his whole attention to fewer lines of work and greatly strengthens both class and experimental work.

H. M. COTTRELL.

Professors Cottrell and Otis have a scheme for the next meeting of the Kansas State Dairy Association. The plan is to select ten men in Kansas who have made good records with their cows and get each of these men to purchase for the Agricultural College the best cow, outside of his own herd, that he can lay down at Manhattan for \$50. The reason for not allowing a selection from one's own herd is to prevent any possible objection that might be raised to a man sacrificing one of his own cows, worth over \$50, in order to come out ahead in the competition. These cows are to reach the College by the first of February and are not to be over eight years old. At the meeting of the State Dairy Association these cows will be judged by experts outside of the State. A cash prize will be offered by the State Dairy Association for the best cow. Part of this prize will be given to the man selecting the best cow, according to the judgment of experts, and the remainder will be given one year later to the man who selected the best cow according to a twelve months' record kept by the Dairy Department of the Kansas Agricultural College. In keeping this record these cows will be treated alike in every way and an account kept of milk and butter fat produced, value of calf and cost of feed. The professors believe this selection of common cows in various parts of the State by experienced dairymen will result in increased interest among dairy farmers in the selection of better cows. Records of what these cows are doing will probably be published once a month so as to keep up the interest throughout the year.

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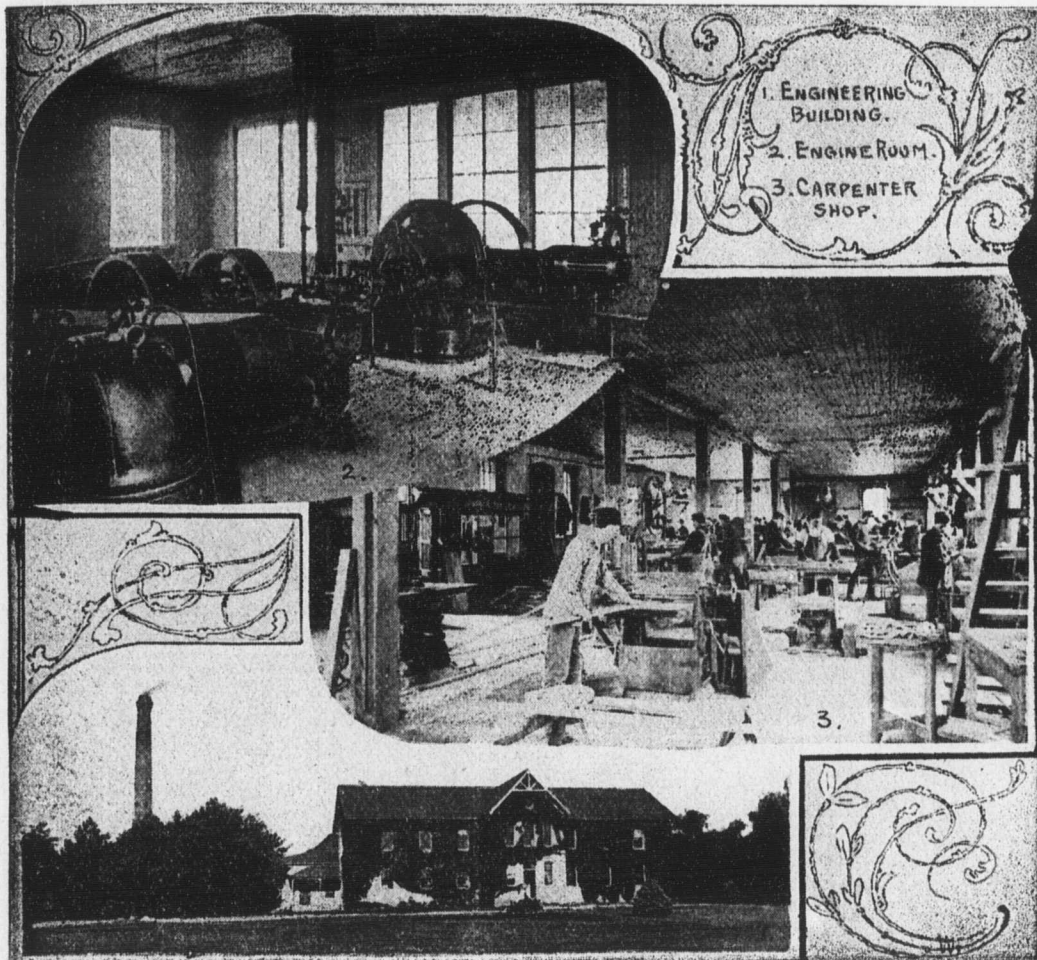
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LOCAL NOTES.



The winter term begins on Tuesday, January 7.

The graduation exercises of the Manhattan schools will be held in the opera house Friday evening, December 20.

Prof. D. E. Lantz is getting material in shape for the early publication of a bulletin on his prairie-dog investigations.

Walter H. Olin, '89, has resigned his position as superintendent of schools at Ottawa, with the intention of taking up advanced studies in agriculture at this College.

Prof. D. E. Lantz went to Haskell county last week to investigate the operation of a new prairie-dog poison—a patent compound used effectively in several parts of Oklahoma.

The last two weeks were busy ones for the professors who are doing farmers' institute work. Seven members of the Faculty were absent on account of this valuable auxiliary work, and all report good attendances.

Judge W. D. Gilbert [74], of Atchison, at present inspector of rural free delivery routes in Kansas, was on December 9 promoted at the request of Congressman Curtis to the office of special agent of this branch of the service in the State. Judge Gilbert's duties will be to examine applications and lay routes recommended by the bureau. His salary will be \$1,400 a year, with \$3 per diem allowance. This is the first appointment in Kansas of the kind.—*Capital*.

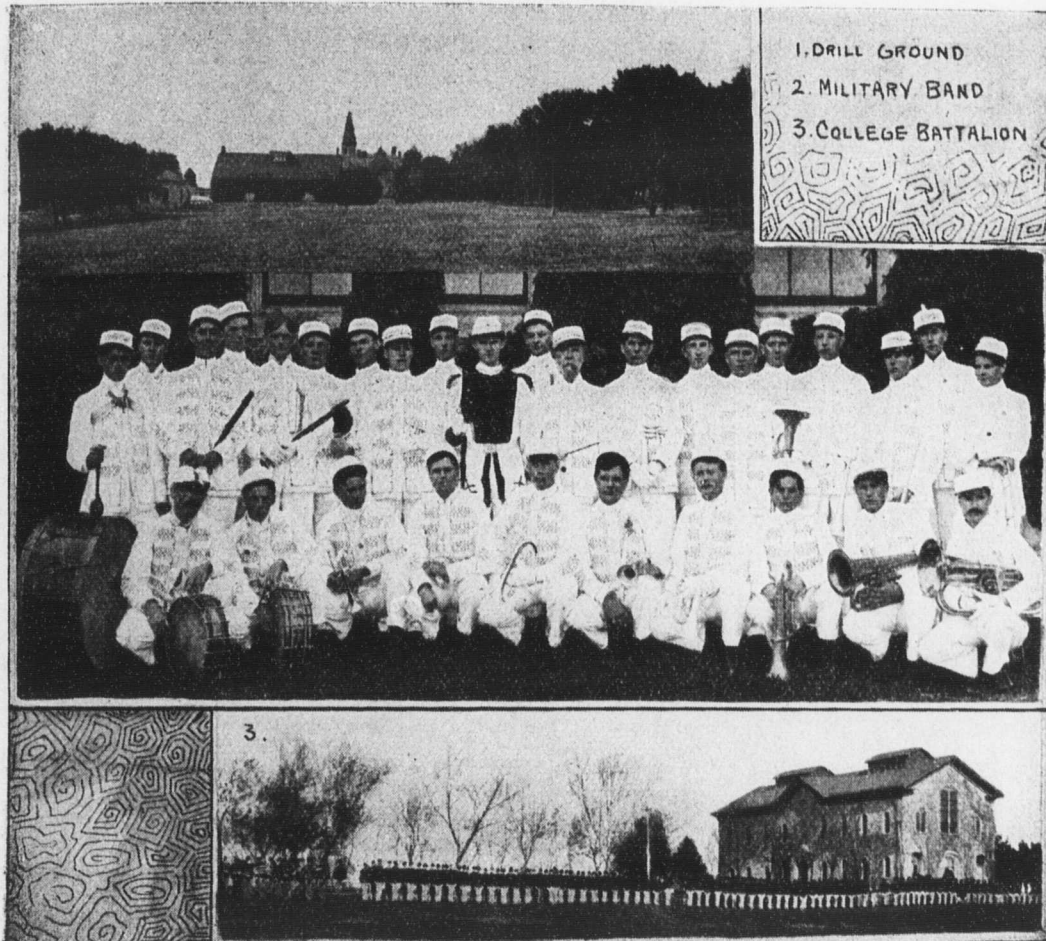
The editorial association of Kansas will meet at Manhattan on February 3 and 4. As outlined by the committee, the first session will be a business meeting from 2 to 6 P. M., with a public meeting at 8 P. M., followed by a social time. The next forenoon will be spent at the Agricultural College, followed by a business meeting at 2 P. M. If found practicable, Wednesday will be spent in an excursion to Ft. Riley. This meeting, if properly sustained, will benefit the town and College more than any other State meeting that could be held here. It is expected that at least two hundred editors, many accompanied by their wives, will be here if the weather is at all favorable.

The Board of Regents were in session last week, but we are unable to report at this writing much special news from their docket. The chief work of the Board at every session is always the routine work, such as auditing bills, looking over the books of the secretary and treasurer, hearing reports by the executive and the heads of departments, and granting appropriations for necessary expenditures. They discussed the work of improving the new experiment station at Hays City, accepted the new gymnasium building from Contractor F. Dale, and made provisions for heating the stock-judging room in the stone barn. A full report will be published in the next number.

The prospects for a large attendance next winter term are very flattering. Not only will there be an increased multitude of students, new and old, in the regular four-year courses, but there will be a large attendance in the short course for farmers and in the dairy course. The professors who have attended farmers' institutes in different counties this fall report an increased interest in the Agricultural College and letters are pouring in from every town and school district inquiring after matters pertaining to courses of study, entrance examinations, lodging houses and textbooks, so that it will be a question of sufficient room and instruction rather than a question of students. In many other states the constant complaint is, that so few young men and young women on the farm desire to study. In Kansas the young farmer and his sister are eager to take every opportunity to improve themselves.

Professors Otis and Walters received one hundred twenty-six applications for the bulletins of the Experiment Station while conducting a series of farmers' institutes in the counties of Sedgwick, Sumner, and Reno.

The city of Manhattan has enjoyed an exceptionally prosperous time for the past year or two and the College is glad of it, because it means increased facilities of all kinds for boarding and lodging places, better book-stores, clothing stores and provision houses,



more sidewalks, improved postal and express services, etc. A stagnating college town can not meet the growing wants of a college of a thousand students and a corps of seventy-five instructors. Manhattan and the Agricultural College are interdependent—the College is growing and the city must grow also or hamper the development of the institution. We hope that the city council will be able to find means during the winter to place electric lights along the most direct route between the high-school building and the College gate, and to realize the standing promise of a macadamized road from the business part of the city to a junction with the neatly gravelled roads of our campus. The College has waited a quarter of a century for these connecting links.

A letter from Mrs. E. W. Bemis to friends in Manhattan states that they are now pleasantly located at Cleveland, Ohio, where Professor Bemis is director of the Cleveland waterworks. She speaks kindly of her associates and friends in Manhattan.—*Mercury*.

Regents McDowell and Fairchild went to Hays from Manhattan after the Board meeting, on Saturday, to effect a settlement with the would-be homesteaders on the old Fort Hays reservation, so as to get the new experiment station in working order for next spring.

The former superintendent of the College Printing Department, Mr. Chas. S. Davis, of Junction City, for the past two years in charge of the printing plant of the Indian School at Chilocco, I. T., has lately been appointed to a position in the government printing office.

W. C. Moore, '88, for many years the editor of the Junction City *Daily Union*, has sold his interest in the paper to John and Harry E. Montgomery. John Montgomery had been his business partner for many years. The *Union* does not state what Moore intends to do next.

Editor Arthur Capper, of the Topeka *Capital*, visited College last Saturday to look over the College and its work. He said he had read so much about "the great modern school of agriculture" that he could not afford to remain in ignorance any longer about its doings and future aspirations.

The assignment committee is making a determined effort to complete the whole work of assigning students for the winter term before the close of the fall term. The committee consists at present of the following members: Professors Willard, Walters, Remick, McIntyre, and McKeever, and Instructors Howell and Rice.

The railroads have granted a fare of one and one-third for all students and teachers of the Agricultural College who intend going home during New Years' vacation. Tickets will be on sale Friday and Saturday, December 20 and 21. The rates apply to all roads in the State. Parties desiring the reduction should have a certificate signed by the President of the College.

The thirty-first annual meeting of the Kansas State Board of Agriculture will be held in representative hall at the State-house January 8, 9, and 10. The meeting will be an interesting one from the fact that addresses will be delivered by members of the agricultural experiment stations of Kansas, Illinois, Indiana, Wisconsin, and other states. In addition the Kansas Improved Stock Breeders' Association and the State Poultry Association will hold their annual meetings in Topeka during the same week as the State Board of Agriculture, and persons going to one meeting can attend the others.

TERMS AND VACATIONS.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.

TUESDAY, JANUARY 7.—Winter term begins.

TUESDAY, JANUARY 7.—Short courses in agriculture and dairying begin.

SATURDAY, FEBRUARY 15.—Examination.

THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.

TUESDAY, APRIL 1.—Spring term begins.

SATURDAY, MAY 10.—Examination.

TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.

JUNE 15 TO 16.—Exercises of commencement week.

THURSDAY, JUNE 19, AT 10 A. M.—Commencement.

JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.

THURSDAY, SEPTEMBER 18.—College year begins.

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ISSUED WEEKLY BY

KANSAS STATE
AGRICULTURAL COLLEGE

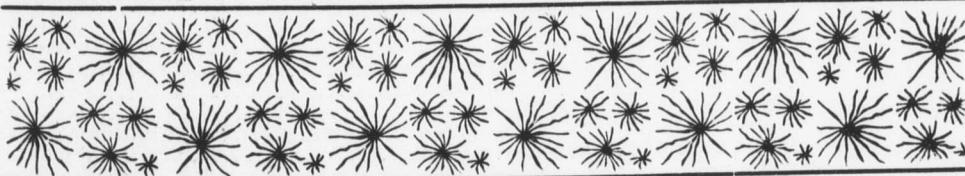


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THE INDUSTRIALIST.

VOL. 28.

MANHATTAN, KAN., JANUARY 14, 1902.

No. 13

PROFIT IN MAINTAINING THE MILK FLOW.

(Press Bulletin No. 106, issued by Department of Dairy Husbandry.)

It will pay to keep up the flow of milk, even though feed is high. Press Bulletin No. 102, from this Station, shows that 16½ pounds of wheat straw and four pounds of ground wheat per day will maintain an average cow. The present low price of stock cattle, with every prospect of high prices in the spring, should induce farmers to hold their cattle, even though feed is high priced. How much more feed will it require to obtain a good flow of milk has been the subject of investigation at the Kansas Experiment Station. Three cows representing a fair average of our Kansas milch cows were fed wheat straw, ground wheat, and cottonseed meal. The cows were accustomed to the cottonseed meal gradually by starting with one-half pound and increasing a quarter of a pound daily until the maximum of four pounds per day per head was reached. This transition period required 14 days. As these cows had been receiving sorghum pasture and alfalfa hay, they did not relish the straw at first and were allowed 52 pounds of alfalfa hay each during the transition period. The following figures give the results in the production of butter fat:

| | |
|---|-----------|
| Daily production of butter fat per cow previous to experiment, 30 days..... | .74 pound |
| Daily production of butter fat per cow during transition period, 14 days..... | .70 pound |
| Daily production of butter fat per cow during experiment, 30 days..... | .62 pound |

The reduction of one-tenth pound in the daily production of butter fat is accounted for in the sudden change from succulent pasture to dry straw and the increase in the lactation period. After the cows were accustomed to the change the production of milk and butter fat was fairly uniform.

During the 30 days under experiment these three cows consumed —

| | |
|----------------------|-------------|
| Wheat straw..... | 1410 pounds |
| Ground wheat..... | 590 pounds |
| Cottonseed meal..... | 244½ pounds |

According to experiments reported in Press Bulletin No. 102, these cows would consume as much or more straw and 360 pounds of wheat of the above grain as a maintenance ration. This leaves 230 pounds of ground wheat and 244½ pounds of cottonseed meal to be charged against the butter fat account. At \$1.00 per hundred for wheat and \$1.50 per hundred for cottonseed meal, this would amount to \$5.96. During this time these three cows produced 56.2 pounds of butter fat. At 17 cents per pound (the price promises to be considerable higher during the winter) the financial account stands as follows:

| | |
|--------------------------------------|--------|
| Value of 56.2 pounds butter fat..... | \$9.55 |
| Cost of feed..... | 5.96 |
| Total profit..... | \$3.59 |
| Profit per cow... .. | 1.19 |

In the above account the skim-milk is to pay for the hauling. With good management it will more than do this.

It will be noticed that this experiment represents an extreme case. Nearly every farmer has some corn or Kafir-corn fodder, millet, sorghum hay, prairie hay, red clover, alfalfa, oat hay, or even oat straw, that he can use instead or in place of part of the wheat straw with much better results. Any of these rough feeds will enable the dairyman to reduce the amount of grain needed. Where red clover or alfalfa is available little or no cotton-seed meal is required.

By feeding his milch cows on a milk ration a farmer will not only save more money than he would to winter them on a maintenance ration, but he will keep his cows in the habit of giving milk (a very important point), will help to keep his creamery, skimming station and cheese factory operating on a paying basis, and will have his cows on hand as a profitable investment in the spring. If he then desires he can dispose of any of his surplus stock at high prices.

D. H. OTIS.

CEREBRITIS OR "STAGGERS" IN HORSES.

Press Bulletin No. 107, issued by Veterinary Department.)

Serious losses in this and adjoining states are occurring at the present time as a result of feeding wormy, mouldy corn, either when it is fed as a grain ration or when obtained by pasturing in the stalk fields, or when fed upon the cut corn fodder.

The disease is an inflammation of the brain or spinal cord and its coverings (meninges), associated with a breaking down of the nerve tissue of the brain. It is popularly called "staggers," or "mad staggers," because of the prominent symptoms shown.

Symptoms.—The symptoms are those of a brain disease. The animal appears blind and only partially conscious; there is often a tendency to turn in a circle to the right or left, and a staggering or a straddling gait. There is usually a trembling of the muscles. As the disease progresses the animal becomes delirious and easily excitable. In many cases the animal will stand with the head or breast against a wall or manger and push. Animals will often eat when badly affected, apparently from force of habit, not because they are hungry. In some cases animals will die in a few hours after they are first noticed ailing. Most of them die within a few days; a few live a week, rarely longer. In a few cases the spinal cord is diseased, while the brain remains nearly normal. In these cases there is inability to control the muscles, or the animal may be unusually sensitive, the least irritation of the skin, even by touching the animal, often causing it to kick violently. Where the spinal cord only is affected the animal frequently recovers. Laxative food should be given, and iodide of potash in one-drachm doses dissolved in water can be given once daily for three or four days.

Mules are rarely affected by this disease.

Treatment.—Practically all cases, where the brain is the seat of the disease, die, and all methods of treatment so far have proven of no value. The animal should be placed where it will be comfortable, and cannot injure itself or other animals, and supplied with soft laxative food, such as thin bran mashes. The only treatment for the disease is preventive, by avoiding the wormy, mouldy corn.

Care should be exercised in handling a horse to avoid injury, as the animal is irresponsible and often in a delirious frenzy.

In some cases horses do not begin to die for a month after being turned into the stalk fields, and they may contract the disease a week, and in some cases ten days, after the mouldy corn has been withheld.

Mouldy or wormy corn does not seem to be injurious to other animals, and can be fed to cattle and hogs without danger. N. S. MAYO.

DESTROYING POCKET-GOPHERS.

(Press Bulletin No. 109, issued by General Department.)

Press Bulletin number 97, issued from this office July 30, 1901, contained some inquiries relative to the presence of pocket-gophers in the various townships of Kansas, with blanks for replies. It was sent to all the township trustees, together with a stamped envelope for replies. About one-half the trustees answered the inquiries. From the information thus secured it is impossible properly to map the distribution of these animals in the State. However, they have been reported from all the counties, except Elk and Neosho; but it is probable that some of them occur in these counties also. In general, they are more abundant in the alluvial soil of the river valleys. They are least common in the southeastern part of the State, and most abundant in the valley of the Kansas river and along its tributaries northward. No distinct boundary between the areas inhabited by the two species—Prairie Gopher and Plains Gopher—has been discovered. The two areas frequently overlap each other.

Personal observations by the writer and the numerous complaints reaching this office all indicate a great activity of these animals and a decided increase in the area of their depredations during the past three months. Alfalfa fields have been the special theater of their operations; but clover fields and meadows have also suffered. The injury to alfalfa is done not only by the hillocks of earth which cover the plants and interfere with cutting the crops, but also by the large quantity of root cuttings made to supply the winter larder of the animals. Great stores of these cuttings, comprising a bushel or two at a place, may be found in the burrows. The loss to the alfalfa growers of the State during the past year from these pests was probably fully a tenth of the entire product and had an actual money value of at least \$500,000. Unless the pest is checked or destroyed during the next few months, another season's loss will be double as much.

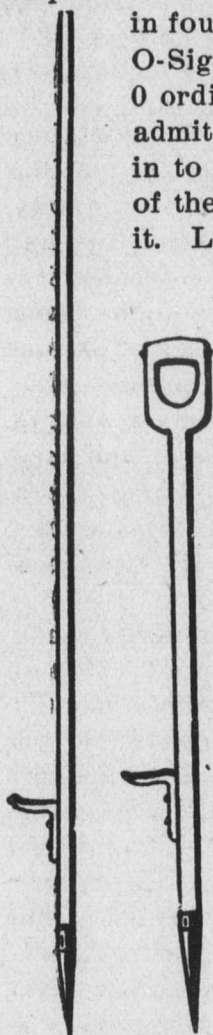
I have recently made a considerable number of experiments in destroying the pocket-gopher, and have collated the experience of a large number of farmers in the matter. My experience and the consensus of opinion from others indicate that the most effective and economical method of dealing with this farm pest is by means of poison introduced into food and placed in the burrows, or runways, of the animal. An improved method of introducing the poisoned food into the runway is recommended, obviating much of the labor which has thus far attended the poisoning of gophers.

Bounties.—Many of our correspondents have expressed the opinion that a system of bounties paid by the State would be effective in dealing with gophers, prairie-dogs, and similar pests. The experience, in every case where such bounties have been tried by either county or State, has been decidedly against the practice.

Poisonous Gases.—The use of carbon bisulphide and other poisonous gases has frequently been recommended for the destruction of the pocket-

gopher. While these methods have been in part successful, the great length of the burrows and their irregularities in depth prevent the gases from flowing into every part, and thus the animals frequently escape.

Trapping.—Trapping, if properly done, is a sure method of killing the gopher; but it is attended with considerable labor and is very slow. A correspondent in Doniphan county reports that 350 of the animals were caught in four months on a forty-acre field of clover. He used the "Out-O-Sight" gopher trap. An excellent trap for general use is the No. 0 ordinary steel trap. In using it, enlarge the hole sufficiently to admit the trap, and remove all the loose soil which may have fallen in to obstruct the runway. Sink the trap in loose soil to the level of the runway, and nearly conceal it by sprinkling fine earth over it. Leave the hole open.



POISONING.

Pocket-gophers are easily poisoned. They are very fond of common potatoes, sweet potatoes, apples, raisins, and prunes. The presence of strychnine, arsenic, or other poisons does not seem to deter them from eating the food; but if the poison is sweetened they seem to eat it more readily. In summer it may be desirable to take the trouble to sweeten the poison, but in the fall and early spring it does not seem worth while to do this. The poisoned food being introduced to the burrows below the surface, there is no danger of poisoning stock. It might be well, however, not to let swine run in the alfalfa fields for a time after the poison has been put out.

The following method of introducing the poison is recommended: Cut the potatoes, or other food, into pieces not more than three-fourths of an inch in diameter. Cut a slit in each piece and with a point of the knife blade insert a little sulphate of strychnine; as much as half the bulk of a grain of wheat will answer the purpose. The moisture from the potato will cause the poison to adhere to the blade.

Having prepared the bait in sufficient quantity, go to the field armed with a round, sharp-pointed implement an inch or an inch and a half in diameter and of sufficient length. The tools here illustrated were made by a blacksmith for the writer. One is a shovel handle and the other a spade handle, and each is shod with a conical iron point. A bar is attached about fifteen inches from the point to enable the operator to use the foot in pressing it into the soil. These tools have proved to be quite serviceable. With one of them it is only necessary to find the runway of the gopher. The handle is sufficiently thick to make a hole large enough to permit one to drop the poisoned potato directly into the burrow. The operator then passes on to another place, leaving the hole open. No digging with a spade or other hard labor is necessary. An experienced person can distribute poison to many acres of alfalfa in a day; and if proper care is taken to rightly distribute the bait, it will not be necessary to go over the ground a second time.

Some experience is required to enable one to find the burrows quickly. It is best to insert the food as near as possible to the freshest mounds of earth thrown up by the animals. Two or three pieces of potato at that place

are worth many scattered in other parts of the runway. The operator should avoid the larger mounds and those that are not freshly made.

D. E. LANTZ, Agent.

DESTROYING PRAIRIE-DOGS—A PRELIMINARY REPORT.

(Press Bulletin No. 108, issued by General Department.)

During the past four months I have made numerous experiments with various gases and poisons for the purpose of finding the most effective and cheapest method of destroying prairie-dogs. These experiments were authorized under the provisions of chapter 273 of the session laws of Kansas for 1901. In this preliminary report it is not my purpose to give any of the details of the experiments. Many of them were failures: several were decidedly effective in destroying the animals, but were too expensive for general use over large areas.

The net result of the experiments, thus far, is that we have found nothing more effective than carbon bisulphide or cheaper than strychnine poison. This bulletin is intended to place before the people of Kansas the results of our experience in using some cheaper combinations of these old remedies in time to secure some decided progress in the work of extermination during the remaining winter months, when the conditions are most favorable for the work. In the meantime it is our intention to continue the experiments, particularly with the object of finding some contagious disease to complete the work of destruction.

CARBON BISULPHIDE.

A tablespoonful of carbon bisulphide placed upon some absorbent material, as cotton, dry horse manure, or a piece of corn-cob, and rolled down the prairie-dog burrows is effective in killing the animals. It is best immediately to cover the hole with a sod and stamp down firmly.

I found by experiment that four parts of gasoline mixed with one part of carbon bisulphide is about as effective as the carbon bisulphide alone, and not nearly as expensive. The mixture is used in the same manner as carbon bisulphide alone, but a somewhat larger dose is needed.

STRYCHNINE POISON.

Formula No. 1.—Dissolve one and a half ounces of strychnia sulphate in a quart of hot water. Add a quart of syrup—molasses, sorghum, or thick sugar and water—and a teaspoonful of oil of anise. Thoroughly heat and mix the liquid. While hot pour it over a bushel of clean wheat and mix completely. Then stir in two or more pounds of fine corn-meal. The quantity of corn-meal needed will depend upon the amount of extra moisture present. There should be enough to wet every grain of the wheat and no more. Care should be taken that there is no leakage from the vessel in which the wheat is mixed.

Let the poisoned grain stand over night, and distribute it in the early morning of a bright day. Use a tablespoonful of the wheat to each hole occupied by prairie-dogs, putting it near the mouth of the burrow in two or three little bunches. Do not put out the poison in very cold or stormy weather. It will keep for a considerable time, and is much more effective after a cold period, as the animals are then hungry and eat the grain readily. A bushel of wheat should poison 1000 to 1200 holes.

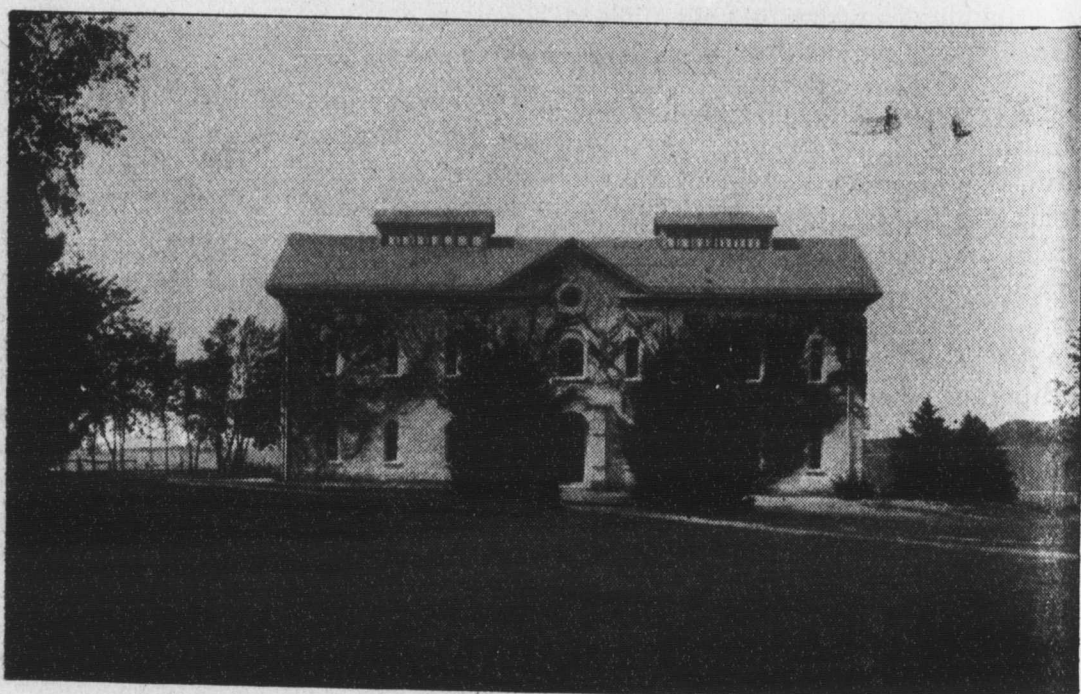
An excellent substitute for the oil of anise in the above formula can be

made by soaking two ounces of green coffee berries in the whites of three eggs. Let this stand for about twelve hours and use the liquid instead of anise oil.

Formula No. 2.—Through the efforts of Hon. S. E. Cave, of Lockport, Kansas, the College has purchased the state right to use a preparation patented by Mr. D. W. Staples, of Quanah, Texas. I have tested it in the field and have found it entirely satisfactory. The inventor claims for it that has the advantage of being effective *at any season*. The simple preparation of strychnine given in formula No. 1 is not successful while green food is plentiful.

Formula No. 2 is protected by letters patent and cannot be used *outside of Kansas* without securing the right from the inventor. We have purchased the right to its use for all the citizens of the state. As this bulletin circulates outside of Kansas, the formula is not here given, but it will be sent to any resident of Kansas upon application.

Section 1 of the law authorizes townships, under some restrictions, to levy money and to purchase poison to destroy prairie-dogs. Section 4 makes it the duty of the Agricultural College to furnish the remedy recommended by it to townships that comply with the provisions of section 1. Accordingly, this Station will be prepared on January 10, 1902, and during three months thereafter, to furnish, at actual cost of materials, poison prepared according to formula No. 2. By buying materials at wholesale, a considerable saving in cost will be made. The poison will be put up in half-gallon cans. Each can will hold enough to thoroughly poison a bushel of wheat. This will be enough for from 1000 to 1200 burrows, from 100 to 160 acres, since only occupied holes need be poisoned. Directions for use will accompany each can. The price will, for the present, be \$1.50 per half-gallon can, f. o. b., Manhattan. Shipment will be by express or freight and in such quantities as trustees may desire. Money orders in payment should be made payable to Miss Lorena E. Clemons, secretary. D. E. LANTZ, Agent.



THE INDUSTRIALIST.

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LOCAL NOTES.

The new U. P. depot is now in use for passenger traffic.

Professor and Mrs. Roberts are rejoicing over the arrival of a son, December 15.

Doctor Weida expects to visit St. John's College, at Salina, next Monday, January 20.

Mrs. Dan Otis has gone to Washington, D. C., to visit her sister, Mrs. Gertrude Lyman-Hall.

Miss Virginia Cartholow, of Williamsburg, Kan., will spend the winter with Doctor and Mrs. Weida.

During the vacation Professor Walters designed a landscape plan for the new city park of Wamego.

A fine pig was received last week by the Farm Department, donated by R. A. Willis, of Lone Star, Kan.

The young people of the Congregational church gave a reception to the new students on Friday evening.

Regent Wm. Hunter, of Blue Rapids, was at the College on January 3 and 4 looking after College business.

Prof. J. T. Willard has been elected president of the Kansas Academy of Science at its annual session at Iola.

Doctor Weida may now be found in room 49, in Gymnasium Hall, where he was domiciled before the fire of 1900.

The Printing Department has recently added to its equipment a new Clandler and Price twenty-six-inch paper-cutter.

President Nichols was absent from College several days last week on account of the agricultural meetings at Topeka.

The *Union Labor Magazine*, of Cheyenne, Wyo., says a good word for the Kansas Agricultural College, and especially for our system of industrials.

During vacation Doctor Mayo was called to Leavenworth, Smith Center, Blue Rapids, and Nortonville, to investigate outbreaks of disease among animals.

The Manhattan Poultry Association has elected the following officers: President, Professor Cottrell; vice-president, B. W. Smith; secretary, W. A. Lamb; treasurer, Geo. Flatter.

County Supt. C. G. Swingle, of Riley county, was granted a life diploma by the State Board of Education at their last meeting.

The official register of the United States for July 1, 1901, records one of our former students, Capt. Frank W. Coe, of Manhattan, detailed as instructor of mathematics at West Point; salary \$2160.

S. J. Stewart, of Humboldt, a Regent of the Agricultural College, is in Washington, D. C., attending to some personal business. He will remain there for a couple of months. Mrs. Stewart is accompanying him.

Mrs. E. E. Winchip, formerly the superintendent of sewing at this College, and at present teacher of sewing at Bradley Institute, Peoria, Ill., visited her old class-rooms "on the hill" a few days ago, in company with her nephew, Professor Otis.

Hand separators have been received at the College creamery from the following companies: National Dairy Machine Company, United States Butter Extractor Company, and Farm Machine Company, donated for this term's work. They are open for inspection to any interested.

Doctor Mayo is showing a Christmas remembrance which he received, with evident satisfaction and pardonable pride. It is a massive gold watch charm, with a diamond setting, engraved on the back with a seal of the state of Connecticut and on the front with "Dr. N. S. Mayo, from Connecticut friends."

Misses Edith and Sadie Gardner, formerly of Manhattan, received their friends on New Year's day at the Metropolitan Presbyterian church in Washington, D. C. Miss Edith is a stenographer in the office of the board of charities and Miss Sadie is assistant principal of the Franklin school.—*State Journal*.

A long-needed improvement was made in the Printing Department during the holidays by the putting in of two pairs of cone pulleys, with which to regulate the speed of the two larger presses. As the College grows so grows the demands made upon this department, and the superintendent is quite anxious to be prepared to meet them.

An advance folder by the well-known Kansas publishing house of Crane & Company announces the early publication of Olin's Commercial Geography, "a work for high schools, commercial courses, and the grammar grades of city and rural schools." The author, Walter H. Olin, '89, is at present taking a postgraduate course in agriculture in this College.

During his recent visit to the Agricultural College, Mr. H. D. Watson, of Kearney, Neb., promised the Printing Department a present of a \$700 wire stitcher. The stitcher has been lately received by the department. It is a large, heavy machine, and is capable of stitching a book an inch thick. Superintendent Rickman shows his new acquisition with much pride.

Ex-Regent Daughters has purchased part of the old Williston place near town, west of the Gen. McDowell place, of Mrs. Frank Williston, for \$1800. The tract consists of twelve acres and has a stone house, to which Regent Daughters will build an addition, besides making other improvements. Mr. Daughters intends to move to Manhattan in the spring to give his children a chance to attend the Agricultural College.

At the meeting of the Academy of Science at Iola last week, Prof. E. A. Popenoe read a paper on the Kansas Hemiptera, Prof. D. E. Lantz on the Prairie Dog, and Prof. J. T. Willard addressed the society on the Nutritive Value of Buffalo-grass. Professors Willard and Lantz were both made life members of the Academy, while Jesse B. Norton, George H. Failyer and Prof. H. F. Roberts, all of this city, were elected to membership.

The twelfth annual meeting of the Kansas Stock Breeders' Association, January 6, at Topeka, was well attended. The Agricultural College took an active part in the program. Prof. D. H. Otis read a paper on "Hand-fed Calves at the Kansas Station," Prof. H. M. Cottrell presented the subject of "Baby Beef," Pres. E. R. Nichols spoke on "The Work of Agricultural Colleges," and Instructor A. T. Kinsley read a paper on "Immunity and Protective Inoculation."

A count of the assignment stubs in the secretary's office, made last Saturday morning, showed a total enrolment up to date of 1109 students. There were several additional names yet pending in the committee on examinations, while the committee on post-graduates had reported but eight resident names out of a possible dozen or two, so that, with the probable arrival of new students, the number will increase well toward the twelve hundred mark before the close of the second week. The next issue of the INDUSTRIALIST will contain a full list of students attending the different courses.

The annual meeting of the State Dairy Association this year will be held at Manhattan, beginning on March 4 and continuing three days. A number of prominent speakers from abroad have been engaged to attend the meeting and speak. Among them are Major Henry E. Alvord, chief of the United States bureau of animal industry; Prof. S. C. Bassett, of the Nebraska Agricultural College; Professor McKay, of Ames, Iowa; H. D. Watson, of Fort Kearney, Neb., and Dr. Henry Wallace, of Des Moines, Iowa. It is expected that this will be the largest meeting devoted to dairying interests ever held by the State association. The dairying industry has been growing in importance in Kansas for several years, but it is a long ways from being as fully developed as it might be.

The following farmers' institutes have been held or have been arranged for since the publication of the last INDUSTRIALIST: December 17 and 18, Oak Grange, Professor Cottrell. December 18 and 19, Burlingame, Mr. G. O. Greene and Mr. V. M. Shoe-

smith. December 19, Indian creek (North Topeka), Professor Cottrell and Prof. Edith McIntyre. December 20, Michigan Valley, Professor Popenoe and Mr. V. M. Shoesmith. December 20 and 21, Oneida, Professor Otis and Prof. Edith McIntyre. January 4, Junction City, Professor Willard. January 21 and 22, Edgerton, Doctor Mayo and Mrs. Calvin. January 22 and 23, Seneca, Professors Willard and Popenoe. January 23 and 24, Berryton, Doctor Mayo and Mrs. Calvin. January 29 and 30, Rockport, Doctor Mayo and Professor Walters.

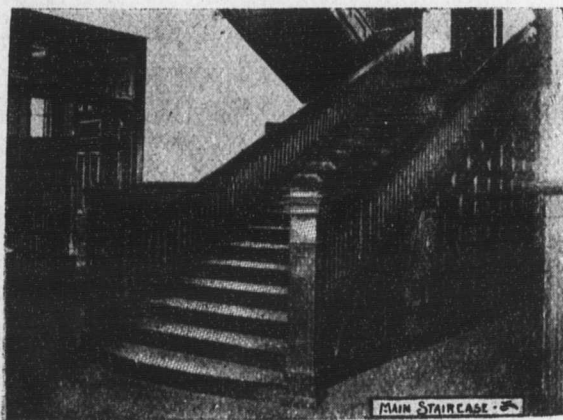
The winter term of the Dairy course has opened with bright prospects. The following data are taken from the records of Professor Otis, of the Dairy Department: Number of students 65, number of self supporting 51, number supported by parents 11, number supported by self and parents 3, number of counties represented 31, average age 22.5 years. These sixty-five students came from the following counties and states: Riley 10, Clay 6, Shawnee 5, Dickinson 4, Barton 4, Lyon 3, Marion 3, Greenwood 2, Franklin 2, Bourbon 1, Coffey 1, Crawford 1, Douglas 1, Gray 1, Harvey 1, Jewell 1, Johnson 1, Kingman 1, Marshall 1, McPherson 1, Nemaha 1, Osborne 1, Osage 1, Phillips 1, Reno 1, Rice 1, Saline 1, Stafford 1, Sumner 1, Thomas 1, Pennsylvania 1, Missouri 1. Since the above was written several additional names were added to the enrolment.

The issue of Leslie's Weekly for January 2 has a story of a Kansas prairie-dog town and an illustration which is humorous enough to have been admitted to *Puck* or *Judge*. Either the editor was imposed upon by some fakir or else the editor is woefully ignorant of animal life in the West. The probabilities are that both contingencies are true, for the picture of the prairie-dog town shows several mounds and five jack-rabbits sitting up as straight as lightning-rods and with the usual long well starched jack-rabbit ears. Perhaps the prairie-dogs in Central Park, New York, have long ears and long legs and can run, but the prairie-dogs of western Kansas bear no resemblance to a jack-rabbit. The article accompanying the picture tells of the crusade of Prof. D. E. Lantz against the prairie dogs. The picture proves how easily the self-esteemed smart men of the East are imposed upon, for the picture was faked up from a photograph and the picture's of the "prairie-dogs" were drawn on the photograph. The picture shows a road and a grubbed-out hedge in the distance. It was probably taken in some pasture, and the mounds, six in number, built for the occasion. The mounds are much larger than the prairie dog variety.—*State Journal*.

A citizens' meeting has been held for the purpose of starting the preparations for the State Editorial Association, which meets at Manhattan, February 3 and 4. S. W. McGarrah, J. Q. A. Sheldon, N. Ballard, Fred Marlatt and Judge G. C. Wilder were appointed an executive committee. The most urgent matter needing prompt attention is the securing of lodging for the members of the association. About two hundred are expected. The hotels will

accommodate as many as they can, but it is necessary that entertainment be found for about one hundred fifty in private houses. The members do not expect free lodging, but they do expect that Manhattan will find places for them. The executive committee have turned for aid to those who are always equal to the needs of the occasion and have drafted the women into service. Mrs. E. B. Purcell, Mrs. Jno. A. Allen and Mrs. C. L. Burnham have consented to look after the solicitation of lodging. Parties who can entertain one or more persons should report to one of these ladies. Judge Sam Kimble and State Representative Frank Emmons were appointed a committee to solicit needed funds. Manhattan will never have a better opportunity to show her hospitality or to advertise the K. S. A. C. Let all do their best.

Among the many monthly periodical publications of this country, most of which are devoted to articles of a literary character, it is interesting to note one that is primarily devoted to the dissemination of public information. We refer to "The Official Guide of the Railway and Steam Navigation Lines of the United States, Canada, Mexico, Cuba, and Porto Rico," so large a portion of the contents of which consists of information as to the most recent railway and steamboat schedules, which embraces the latest news as to all changes in such schedules. The latest information as to such changes appears in each monthly issue of "The Official Guide," and the extent to which this important news affects people generally may be realized from the following extract from the leading editorial in its December issue: "We publish in our December issue not merely the current figures for all railway lines, but also information conveyed to us by mail and by telegraph, respecting changes on 619 time tables, affecting not less than 15,846 trains and giving the latest current news as to the time of the arrival and departure of trains at not less than 28,000 stations. The number of people who are affected by these changes may be counted by millions. While the extent of this news printed in the December 'Guide' is greater than usual, nevertheless the smallest number of new time-tables respecting which current information was published in 'The Guide' for any month in 1901 was 226."



MAIN STAIRCASE - 8

ALUMNI AND FORMER STUDENTS.

H. B. Gilstrap, '91, has been appointed postmaster at Chandler, Oklahoma.

H. G. Pope, '94, and Miss Aline Jewell were married in Kansas City on New Year's Day.

J. G. Haney, '99, will attend the Iowa State College next term. He has given up teaching the Mexicans agriculture.

H. S. Bourne, '00, was married Christmas day to Miss Maud Morris. They will be at home on a farm near the old home.

Miss Mary Norton, '97, left Friday for St. Louis, where she has a position as indexer in the library at Shaw's Botanical Garden. —*Nationalist*.

Capt. J. G. Harbord, class of '86, who has a very comfortable berth at Washington, D. C., leaves with his company for the Philippines. —*Nationalist*.

We regret to hear that H. T. York, '00, is not recovering his health. He is now in El Paso, Tex., in the hope that the climate will benefit him in his struggle with the pulmonary difficulty with which he is affected.

Claude H. Sanford, of Fayetteville, Ark. [second year '98], and Miss Lillian E. Hathaway [third year '99], were married yesterday noon at the residence of J. A. Koller by Reverend Rickman. —*Mercury, December 25*.

Friends of Miss Olivia Staatz, of Enterprise, student here in '99 and '00, will be pleased to know that she has obtained a position as instructor in domestic science in the school for the deaf at Council Bluffs, Iowa. —*Nationalist*.

Helena Pincomb, '01, who assisted in the instruction in sewing in the short-course classes last term, has gone to Pittsburg, Kan., to teach domestic art in the public schools there. She doubtless will acquit herself with credit to her alma mater.

The many friends of Alex. G. Wilson, '99, were greatly shocked to learn that he died of inflammation of the bowels, Wednesday morning, January 8, at Russell, Kan. Mr. Wilson was a most estimable young man and will be sadly missed by his relatives and friends.

Married, December 25, at the home of the bride, Miss Anna Daisy Kessler, of Topeka, and William Lee Harvey, '02, of Arkalon. The bride was a short-course student here in the fall of '00. The groom is a senior of K. S. A. C. Mr. and Mrs. Harvey will make their home in Manhattan. —*Nationalist*.

The published report that J. E. Payne, '87, and Mary Cottrell-Payne, '91, had lost their twin daughters is erroneous, we are glad to learn. Mr. Payne writes as follows: "We lost but one of the little girls (Martha). Nellie was not sick at all. The boy, Amos, had a severe case of tonsilitis. All are well now."

Friends of W. R. Spilman, third-year student 1889, will be much interested to learn of his recent promotion to the chief of the bureau of appointments in the post-office department at a salary of \$2000. This has been Will's fifth promotion since he was appointed to the civil service. He now has charge of about twenty-four men, and all of his old Manhattan friends will be pleased to learn of his merited promotion.—*Mercury*.

M. A. Carleton, '87, cerealist of the United States department of agriculture, is the author of Bulletin No. 3, of the bureau of plant industry, just issued. It treats of macaroni wheats. This bulletin will be welcomed by many, as these varieties of wheat are attracting wide attention because of their ability to mature with a minimum of rainfall. It is handsomely illustrated, including a number of interesting views showing wheat management in Siberia.

Prof. M. A. Carleton [87], of Manhattan, now famous as the government cerealist and wheat expert of the world, departed today for a tour through Kansas and other wheat-growing states in the interest of the introduction and growth of macaroni wheats. He will particularly visit the experiment stations located at Manhattan and Halstead while in Kansas. Professor Carleton stated that the government would in all probability cooperate with the State in establishing an additional experiment station in Ellis county at an early date.—*Capital*.

Mrs. Nellie Evangeline Thayer, wife of Ellis C. Thayer, of Oak Grove, died at her home Friday night. Reverend Crouch, of Maple Hill, conducted the funeral services at the home Sunday. Mrs. Thayer had spent her entire life in this community, she and her husband both being graduates of the class of 1891 of the College. They were married in 1895 and became the parents of three children; the youngest is an infant one week old. The relatives and friends of the family in this community feel the deepest sympathy with those whose loss is so untimely and irreparable.—*Nationalist*.

May Haines Bowen, '96, was graduated from the University of Chicago December 17, 1901, with the degree of bachelor of arts. Those familiar with Miss Bowen's record here will not be surprised to learn that she was awarded honorable mention for excellence in the work of the senior colleges, and honors for excellence in the particular department of history. In the class of twenty-five, only one other received honors for excellence in a particular department. Miss Bowen is the first "grandchild" of the College, her mother, Mrs. Emma Haines Bowen, '67, being a member of its first class.

Mr. Ralph W. Rader and Miss Nettie Scofield were happily united in marriage by Reverend Corkill, at the home of the bride's parents in Clay Center, Tuesday, January 7, at 9:30 A. M. Cupid's captive this time was one of Clay Center's most amiable and talented young women. Mr. Rader, one of Riley county's most

successful teachers, graduated from the Agricultural College in '95, and is well known to many Riley county people. The young couple left at once for Junction City, from whence they will return to Manhattan and Topeka, then go to Fayetteville, Ark., where they will be at home to their many friends after January 20.—*Nationalist*.

Chas. L. Marlatt, '84, first assistant entomologist of the United States department of agriculture, is now receiving notices in the papers on account of his discoveries in reference to the San José scale. Mr. Marlatt has been making a long exploration in Japan and China in a search for the original home of this very noxious insect. As early as last summer he announced that the scale had probably reached this country from Japan, rather than Japan from here. Now, if the newspaper reports are true, he regards China as the original home of the scale. He finds a lady-bird accompanying it and keeping it in check to such an extent that it is comparatively harmless. In this country the scale has worked its disastrous way unchecked by natural enemies, but it is now hoped that these may be successfully introduced. Mr. Marlatt is regarded as one of the best informed entomologists of the country.

At the meeting of the Kansas Academy of Science held at Iola, December 30 and 31, the following papers were presented by graduates and former students: "On a New Plesiosaur," by S. W. Williston, '72; "On Certain Methods in the Geometry of Position," by Arnold Emch, graduate student in '94; "Modern Necessities in the Teaching of Elementary Botany," and "Progress and Possibilities in Cereal Breeding in Kansas," by H. F. Roberts, graduate student in '98; "Notes on Some Kansas Hemiptera," "The Flora of a Phragmites Bog," and "Some Kansas Lygeidæ," by J. B. Norton, '97; "Additions to the List of Kansas Coleoptera for 1901," and "Collecting Coleoptera in Wyoming and Utah," by Warren Knaus, '82; "The Composition and Digestibility of Buffalo-grass Hay and Prairie Hay," and "The Relation Between Specific Gravity and Nitrogen-content in the Corn Kernel," by J. T. Willard, '83, and R. W. Clothier, '97.

Miss Mary Bly Pritner, '99, assistant in domestic science, and Dr. Frank C. Lockwood, professor of English in this institution, were married at the home of the bride's parents, near Keats, December 24. The guests invited included only a few near friends and relatives. The ceremony was performed by Professor Lockwood's father, Rev. Lockwood, of Beloit. They left on the afternoon train for Chicago from which, after visiting a few days, they proceeded to Middletown, Conn., where they will be at home for the remainder of the university year at 161 High street. Mrs. Lockwood has a host of friends in this vicinity and throughout the State who will unite with us in wishing her a complete realization of her joyous anticipations and in congratulating Professor Lockwood upon obtaining one of the brightest and fairest of the daughters of the College. Professor Lockwood will continue his studies at Wesleyan University, and Mrs. Lockwood will take up work there also. They will receive a cordial welcome from the College and town upon their return next fall.

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ISSUED WEEKLY

KANSAS STATE
AGRICULTURAL COLLEGE

☆ ☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

☆ ☆ ☆

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No. 14

THE EXPERIMENT STATION.

IF there is any section of the country that needs the painstaking assistance of the scientific agriculturist and experimenter, it is the prairie and mountain region of the West, where a climate unlike that of the older part of the United States and the civilized countries of Europe makes the selection of new crop plants and the adoption of new methods of tilling and husbanding an imperative necessity. It is natural that this necessity should have presented itself with great force to the managers of an institution founded for the purpose of educating the youth of the State for the vocation of a farmer. Experimental work in a small way, especially in the important field of forest planting, was commenced as early as 1868, and was continued, as far as the limited means permitted, by Prof. E. Gale, who for many years was the president of the State Horticultural Society. In 1874, Professor Shelton commenced a series of very valuable experiments in the cultivation of alfalfa, cow peas and tame grasses, continuing his observations of varieties and species under different forms of treatment up to 1889. Later on, experiments were made in subsoiling, listing, feeding, etc. The results were published in the *INDUSTRIALIST* and in freely-distributed annual reports. Professor Popenoe, following his predecessors in the work of horticulture, made a series of experiments in arboriculture, grape growing, and vegetable gardening. This work was carried on chiefly at the expense of the College, though during the last dozen years the legislature reluctantly assisted with a few paltry appropriations. In 1888, however, the work gained a new phase by the assistance of the general government.

The passage by Congress of the "Hatch bill," in March, 1887, provided for the organization in each state of a station for experiments in lines promotive of agriculture. The legislature at once designated this College as the proper place for the station, and measures were taken for such work. It was found, however,

that no appropriation had been made for carrying out the provisions of the bill, and accordingly little could be done until February, 1888, at which time the appropriation was made.

The law, named after Senator Hatch, of Missouri, who was its framer and promoter, is as follows:

AN ACT to establish agricultural experiment stations in connection with the colleges established in the several states under the provisions of an act approved July 2, 1862, and of the acts supplementary thereto.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges, or agricultural department of colleges, in each state or territory established, or which may hereafter be established, in accordance with the provisions of an act approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "Agricultural Experiment Station:" *Provided,* That in any state or territory in which two such colleges have been or may be so established, the appropriation hereinafter made to such state or territory shall be equally divided between such colleges, unless the legislature of such state or territory shall otherwise direct.

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural interests of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states or territories.

SEC. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States commissioner of agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important; and in general, to furnish such advice and assistance as will best promote the purposes of this act. It shall be the duty of each of said stations, annually, on or before the first day of February, to make to the governor of the state or territory in which it is located a full and detailed report of its

operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the commissioner of agriculture, and to the secretary of the treasury of the United States.

SEC. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the states or territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports, and the annual reports of said stations, shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the postmaster-general may from time to time prescribe.

SEC. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results as hereinbefore prescribed, the sum of \$15,000 is hereby appropriated to each state, to be specially provided for by Congress in the appropriations from year to year, and to each territory entitled under the provisions of section 8 of this act, out of any money in the treasury proceeding from the sales of public lands, to be paid in equal quarterly payments on the first day of January, April, July and October in each year, to the treasurer or other officer duly appointed by the governing boards of said colleges to receive the same, the first payment to be made on the first day of October, 1887: *Provided, however,* That out of the first annual appropriation so received by any station, an amount not exceeding one-fifth may be expended in the erection, enlargement or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended.

SEC. 6. That whenever it shall appear to the secretary of the treasury, from the annual statement of receipts and expenditures of any of said stations, that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this act shall be construed to impair or modify the legal relation existing between any of the said colleges and the government of the states or territories in which they are respectively located.

SEC. 8. That in states having colleges entitled under this section to the benefits of this act, and having also agricultural experiment stations established by law separate from said colleges, such states shall be authorized to apply such benefits to experiments at stations so established by such states; and in case any state shall have established, under provisions of said act of July 2 aforesaid, an agricultural department or experimental station in connection with any university, college or institution not distinctively an agricultural college or school, and said states shall have established or shall hereafter establish a separate agricultural college or school, which shall have connected therewith an experimental farm or station, the legislature of such state may apply in whole or in part the appropriation by this act made to such agricultural college or school; and no legislature shall, by contract, express or implied, disable itself from so doing.

SEC. 9. That the grants of moneys authorized by this act are made subject to the legislative assent of the several states and territories to the purposes of said grants: *Provided,* That payments of such installments of the

appropriation herein made as shall become due to any state before the adjournment of the regular session of the legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof, duly certified to the secretary of the treasury.

SEC. 10. Nothing in this act shall be held or construed as binding the United States to continue any payments from the treasury to any or all of the states or institutions mentioned in this act; but Congress may at any time amend, suspend or repeal any or all of the provisions of this act.

Approved March 1, 1887.

As soon as the news arrived that the President had signed the bill, the legislature passed the following concurrent resolution:

Be it resolved by the Senate of the State of Kansas, the House concurring, That the annual appropriation of fifteen thousand dollars (\$15,000), made available to the State of Kansas under the act of Congress for the maintenance of an experiment station for the benefit of agriculture, in connection with each college established under the act of Congress approved July 2, 1862, be and is hereby placed under the control of the Board of Regents of the Kansas State Agricultural College, subject to rules and regulations expressed or implied in the act of Congress above named.

Approved March 3, 1887.

These enactments placed \$15,000 in the hands of the Board of Regents for use during the year ending June 30, 1888, and an equal sum for the year following. The organization of the Experiment Station was at once completed and the work started. The general executive management of the Station was placed under the control of a council, consisting of the President, the professors of agriculture, horticulture and entomology, chemistry, botany, and veterinary science. Pres. George T. Fairchild was made *ex-officio* chairman of the council, and Prof. E. M. Shelton director. The organic act permitted the use of one-fifth of the appropriation of the first year for building purposes. From this source the horticultural laboratory, with about twenty-four hundred square feet of propagating pits, was constructed.

Upon the resignation of Prof. E. M. Shelton, in January, 1890, the office of director was discontinued, and the clerical duties heretofore connected with that office given to the Assistant Secretary of the Board of Regents; but ten years later, in June, 1900, the Board of Regents went back to the original plan, reestablished the office of director and elected Prof. J. T. Willard, of the Chemical Department, to the position. In 1901 the newly-created chair of Dairy Husbandry was added to the Station staff. The experimenting force of the College in 1902 consists of eight professors and seven assistants.

In 1894 the College, heeding the general clamor for irrigation experiments, established an irrigation farm of about ten acres at Garden City, but two years later, after spending several thousand dollars in irrigation operations, it was decided to abandon further investigations in that quarter. A similar effort was made near Oberlin. Prof. O. P. Hood, of the Mechanical Engineering Department, believing that the irrigation problem was chiefly a question of effective pumps and cheap motive power, made a series of experiments with pumps for the purpose of testing their working results in hoisting water, but although much of this work was done in connection with the College Experiment Station, the report was ultimately published by the State Board of Irrigation Survey and Experiment.

During the closing days of the winter session of Congress in 1895 a bill was passed giving the Agricultural College the greater part of the reservation of the abandoned Fort Hays, in Ellis county, a tract of over seventy-two hundred acres of fine prairie land, for the purpose of founding a branch experiment station. The remainder of the reservation was donated the State for locating a Normal School, while a small strip of land along the town site was to form a public park. President Cleveland vetoed the bill, as he had vetoed the "deficiency bill" mentioned elsewhere, but in the spring of 1900 the bill was again passed, being introduced and fathered by Senator W. A. Harris and Congressman W. A. Reeder. The Act reads as follows:

Be it Enacted, That the abandoned Fort Hays reservation, and all improvements thereon, situated in the State of Kansas, be and the same is hereby granted to said State upon the conditions that said State shall establish and maintain perpetually thereon, first, an experimental station of the Kansas Agricultural College; second, a western branch of the Kansas State Normal School, and in that connection therewith the said reservation shall be used and maintained as a public park:

Provided, That said State shall, within five years from and after the passage of this act, accept this grant, and shall by proper legislative action establish on said reservation an experiment station of the Kansas Agricultural College and a western branch of the Kansas State Normal School, and whenever the lands shall cease to be used by said State for the purposes herein mentioned the same shall revert to the United States.

Provided further, That the provisions of this act shall not apply to any tract or tracts within the limits of said reservation to which valid claim has attached by settlement or otherwise under any public-land laws of the United States.

A few days after the passage of this act, the State legislature,

then also in session, accepted the proffered grant and obligated itself to carry out its liberal conditions. The following is a copy of the act as far as it relates to the organization of the Experiment Station, sections 4, 5, 6, 7 and 8 relating to the establishment of the Normal School having been omitted:

SECTION 1. The Boards of Regents of the State Agricultural College and of the State Normal School, respectively, are hereby authorized to locate and establish an experimental station of the State Agricultural College and a branch or auxiliary of the State Normal School on the Fort Hays military reservation.

SEC. 2. The following-described tracts of land lying within the limits of the reservation aforesaid, to-wit: Section 36, township 13 S., range 19 W.; section 31, township 13 S., range 18 W.; section 1, township 14 S., range 19 W.; sections 6 and 8, the east half of section 7, the north half of section 17, and the northeast quarter of section 18, all in township 14 S., range 18 W., are hereby placed under the direction of the Regents of the State Normal School. It shall be their duty to lease or rent the said lands to the best advantage, and all moneys derived from rents for such lands shall be collected by the Regents aforesaid, who shall deposit the same with the treasurer of the Board, to be expended by said Board of Regents for the equipment and maintenance of said auxiliary of the State Normal School.

SEC. 3. All the remaining lands of the reservation aforesaid are hereby placed under the direction of the Board of Regents of the State Agricultural College, except the north half of section 5, township 14 S., range 18 W., which, with the buildings thereon, shall be used jointly as may be determined by the Boards of Regents of the institutions aforesaid.

SEC. 9. The Board of Regents of the State Agricultural College is hereby authorized to locate and establish on the reservation aforesaid an experimental station of the Agricultural College, and shall adopt such measures as may be necessary to place the same in successful operation and to preserve the land, upon which the native timber is now growing, as a public park.

SEC. 10. To carry out the provisions of section 9 of this act, the sum of three thousand dollars is hereby appropriated for the fiscal year ending June 30, 1902, and three thousand dollars for the fiscal year ending June 30, 1903.

SEC. 11. All sums of money payable out of the appropriations specified in section 8 of this act shall be upon vouchers approved by the Board of Regents of the State Normal School; all sums payable out of the appropriations specified in section 10 shall be upon vouchers approved by the Board of Regents of the State Agricultural College.

SEC. 12. The auditor of State is hereby authorized to draw his warrants on the treasurer of State for the several sums and purposes specified in this act upon verified vouchers approved by the Boards of Regents of the State Normal School or the State Agricultural College: *Provided*, That no portion of the money appropriated in this act shall be expended by the Boards of Regents until the attorney-general of the State of Kansas shall first notify the governor and the Board of Regents that the title to the land in said reservation is unimpaired, and the land is available under the terms of the act of Congress ceding said reservation to the State.

SEC. 13. This act shall take effect and be in force from and after its publication in the official State paper.

Approved February 26, 1901.

Published in official State paper March 1, 1901.

House joint resolution No. 1, accepting the abandoned Fort Hays military reservation.

Be it resolved by the Legislature of the State of Kansas:

SECTION 1. That the State of Kansas hereby accepts from the United States the abandoned Fort Hays military reservation, as provided in act of Congress relating thereto, approved March 27, 1900.

SEC. 2. That the provisions of the act of Congress, "An act granting to the State of Kansas the abandoned Fort Hays military reservation, in said State, for the purpose of establishing an experimental station of the Kansas Agricultural College and a western branch of the Kansas State Normal School thereon and a public park," approved March 27, 1900, are hereby accepted by the State of Kansas.

SEC. 3. That upon the approval of this act by the governor, he is requested to transmit a certified copy of the same to the secretary of the interior of the United States.

Approved February 7, 1901.

Copy transmitted to secretary of the interior February 7, 1901.

Since its organization there have been issued one hundred five bulletins and fourteen annual reports, the former containing current matter of general interest to farmers, horticulturists, and stockmen, while the latter include data of all completed experiments, with brief references to those still in progress. All bulletins and reports are distributed free to those who apply for them. The usual edition of the earlier bulletins was seventy-five hundred copies, but the general demand for information on certain subjects has required much larger editions of late. During the past three years the number of applicants has increased so that many editions have run short with twenty-five or thirty three thousand copies. The following is a list of the bulletins issued thus far. The titles give a fair index to the range and character of the investigations carried on by the different departments:

1888—No. 1. Organization, Equipment, and Aims.

No. 2. Experience with Cultivated Grasses and Clovers.

No. 3. Life-History of two Orchard Pests.

No. 4. Experiments with Wheat.

No. 5. Sorghum and Sorghum Blight.

1889—No. 6. Silos and Ensilage.

No. 7. Experiments with Wheat.

No. 8. Preliminary Report on Smut in Oats.

No. 9. Experiments in Pig Feeding.

- 1890—No. 10. Notes on Conifers for Kansas Planters.
No. 11. Experiments with Wheat.
No. 12. Preliminary Experiments with Fungicides for Stinking Smut of Wheat.
No. 13. Experiments with Oats.
No. 14. Winter Protection of Peach Trees, and Notes on Grapes.
No. 15. Additional Experiments and Observations on Oat Smut, made in 1890.
No. 16. Experiments with Sorghum and Sugar Beets.
No. 17. Crossed Varieties of Corn, Second and Third Years.
No. 18. Experiments with Forage Plants.
No. 19. Germination of Weeviled Peas—Garden Notes on Potatoes, Beans, and Cabbage.
- 1891—No. 20. Wheat.
No. 21. Stinking Smut of Wheat.
No. 22. Smut of Oats; Smut and Rust of Wheat.
No. 23. Smut of Sorghum and Corn.
No. 24. Staggers of Horses.
No. 25. Sorghum for Sugar.
No. 26. Varieties of the Strawberry.
No. 27. Crossed Varieties of Corn.
No. 28. The Experimental Vineyard.
No. 29. Oats.
No. 30. Corn.
No. 31. Sugar Beets.
No. 32. Feeding Stuffs, and the Development of Grain Crops. Soy Beans.
- 1892—No. 33. Experiment with Wheat.
No. 34. Experiments in Feeding Steers.
No. 35. *Actinomyces bovis*, or "Lumpy Jaw" of Cattle. Some Observations upon Loco.
No. 36. Experiments with Sorghum and with Sugar Beets.
No. 37. Experiments in Potato Culture.
- 1893—No. 38. Preliminary Report on Rusts of Grain.
No. 39. Experiments in Feeding Steers, II.
No. 40. Experiments in Wheat.
No. 41. Effect of Fungicides upon the Germination of Corn.
No. 42. Experiment with Oats.
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No. 44. Further Study of Native Grapes.
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- 1894—No. 46. Rusts of Grain, II.
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No. 48. Six Years' Experience with Ensilage. Some Forage Plants. Renovating a Prairie Pasture.
- 1895—No. 49. Cattle Poisoning by Potassium Nitrate. Mastitis.
No. 50. Kansas Weeds, I—Seedlings.
No. 51. Steer Feeding, IV—A Comparison between Pure-bred Short-horns and Scrubs.
No. 52. Kansas Weeds—Preliminary Circular on Distribution.
No. 53. Pig-feeding Experiments with Corn, Wheat, Kafir-corn, and Cottonseed.

- No. 54. Experiments with Oats.
No. 55. Small Fruits by Irrigation. Culture of Strawberries.
No. 56. Experiments with Corn. Experiments with Kafir-corn.
1896—No. 57. Kansas Weeds, III—Descriptive List.
No. 58. Cornstalk Disease of Cattle.
No. 59. Experiments with Wheat.
No. 60. Steer-feeding Experiments, Series V.
No. 61. Kafir-corn, Corn and Soy-bean Meal for Pigs. Kafir-corn
and Corn-meal for Cattle.
No. 62. Corn-smut.
No. 63. Experiments with Oats.
1897—No. 64. Experiments with Corn.
No. 65. Grafting the Apple.
No. 66. Kansas Weeds, IV—Fruits and Seeds.
No. 67. Steer Feeding, VI.
No. 68. Soil Moisture.
No. 69. Some Diseases of Cattle.
No. 70. Vegetable Growing.
No. 71. Experiments with Wheat.
No. 72. Growth of Young Stock.
No. 73. Miscellaneous Fruit Notes.
No. 74. Experiments with Oats.
No. 75. Root Development of Forage Plants.
1898—No. 76. Kansas Weeds, V—Vegetative Propagation.
No. 77. Some Insects Injurious to the Orchard.
No. 78. Sugar Beets.
No. 79. Bovine Tuberculosis.
No. 80. Kansas Weeds, VI—Distribution and Other Notes.
No. 81. Feed and Care of the Dairy Cow.
1899—No. 82. The Potato-stalk Weevil.
No. 83. Sugar Beets.
No. 84. Cold Storage for Fruit.
No. 85. The Growth of Alfalfa in Kansas.
No. 86. Press Bulletins Nos. 1 to 34.
No. 87. Native Agricultural Grasses of Kansas.
No. 88. Keeping Milk in Summer.
No. 89. Soil Moisture.
1900—No. 90. Alfalfa in Eastern Kansas.
No. 91. Swine-plague.
No. 92. A New Drought-resisting Crop—Soy Beans.
No. 93. Kafir-corn.
No. 94. Sugar Beets, 1899. The Station Publications. Partial Index
to Station Publications.
No. 95. Fattening Hogs with Drought-resisting Crops.
No. 96. Soil Inoculation for Soy Beans.
No. 97. Skim-milk Calves.
No. 98. Some Scale-insects upon Kansas Grasses.
No. 99. Press Bulletins Nos. 35 to 70.
1901—No. 100. Soy Beans in Kansas in 1900.
No. 101. Notes from the Plum Orchard.
No. 102. Forage Plants for Kansas.

- No. 103. Digestion Experiments with Kansas Feeds. Sugar Beets in Kansas, 1891 to 1900.
No. 104. Fall Seeding of Alfalfa.
No. 105. Blackleg in Kansas.

The total number of bulletins and reports distributed by the Experiment Station during the fifteen years of its existence reaches a million and a quarter copies, and the demand for them is constantly increasing—a fact that speaks as well for the farmer of the State as it does for the work of the College. Several of the bulletins were reprinted by creamery companies and manufacturers of agricultural machinery, for free distribution among their patrons. Yet much of the work of the Experiment Station has not been published, because nearly all field or garden experiments require the corroboration of several seasons before the results can be trusted and many experiments are discontinued for one reason or another before they have produced tangible results. In a laboratory experiment, the manipulator can control the conditions to such an extent that single tests will usually determine the existence or non-existence of an anticipated fact; but in the field the ever-varying conditions of rainfall, wind, frost, drought, insect pests, rusts, etc., can not be controlled or eliminated so as to give in a single season all the required data for the conclusions sought.

The Agricultural College, through its Experiment Station, has not only become the accepted Kansas clearing-house for new methods and theories in farming, horticulture, stockraising, and dairying, but it has also contributed much toward the actual introduction and spread of better grains, grasses, vegetables, forest trees, ornamental plants, etc. Its picturesque exhibits of grasses, alfalfa hay and Jerusalem corn at the big fairs in Bismark park, near Lawrence, twenty years ago, and its large displays of alfalfa, grains, grapes, and vegetables, at the State fairs in Topeka fifteen years ago, were inspirations to thousands of farmers all over the West. The introduction in Kansas of the soy bean, the red Kafir-corn, and many other drought-resisting crops, is the direct work of the Kansas State Agricultural College. J. D. WALTERS.

Elections were held in the four literary societies last Saturday. The presiding officers for the present term are as follows: Alpha Betas, C. H. Clark; Hamiltons, Floyd Champlin; Ionians, Miss Mamie Alexander; Websters, E. R. Secrest.

THE INDUSTRIALIST.

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Manhattan, Kansas.

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LOCAL NOTES.

Capt. J. S. McDowell, president of the Board of Regents, was at the College on business last Thursday and Friday.

The girls' dressing-room in the gymnasium has been provided with one hundred five neat, new lockers. The work was done by the superintendent and boys of the carpenter shops.

Friends of Miss Josephine Harper will learn with regret that her condition is such that she was again taken to Christ's hospital in Topeka and will be under Doctor McClintock's care. She went down Saturday, January 11.

The literary societies have made arrangements for an oratorical contest to be held on Saturday night, January 25, in the College chapel. It is needless to say that the contestants have been selected with care and that they are improving each shining hour to file and rasp on their orations.

Secretary Hitchcock has refused to grant a review of the decision of the department of interior, declaring the title to the Fort Hays military reservation to be vested in the State of Kansas. This, of course, gives the State clear title and disposes effectually of the claims of the present settlers on the reservation. The College officials here have not been pushing their work at Fort Hays, but have been waiting Secretary Hitchcock's decision.

Miss Frances Norris, of Ottawa University, gave a very interesting program of readings from George Elliot's works on the evening of January 13 at the Manhattan opera-house, under the auspices of Miss Berry, of the English Department of this College. The recitation was well attended and well received. On the following morning Miss Norris visited the College and was present at chapel where, by special request, she gave a humorous selection in southern dialect that resulted in a grand encore such as only students are able to offer.

Prof. A. S. Hitchcock, assistant agrostologist of the department of agriculture, Washington, D. C., formerly professor of botany at the State Agricultural College, has returned, after a long absence, to his duties in the department. He left Washington in the summer to look after the experimental grass gardens of the department, which are being conducted in several states, and soon after had a severe attack of typhoid fever while on duty in Oregon. After recovering somewhat he proceeded with his work, but very soon after suffered a relapse in Iowa, and is just now able to return to his work there.

Mr. Chas. Streeter, of Milford, Geary county, father of Miss Anna L. Streeter, '99, has bought three lots near the Doctor Ross residence in west Manhattan with the intention of building a home for his family who intend to go to College. We say: Welcome, Mr. Streeter!

The greatest events of the meeting of the State Board of Agriculture at Topeka last week were the addresses by Professor Henry, dean of the Wisconsin Agricultural College. He has the reputation of standing at the head of the men of his calling of the world. In an address made last Friday, he told the Kansans that this State must wake up or lag back in the procession; and that better care must be taken of the Agricultural College in the future than has been given it in the past. "Wisconsin," said the speaker, "a poorer state than Kansas, spends more on her agricultural college than you do here." Professor Henry considers that a most creditable record has been made at Manhattan, considering the means at the disposal of the College. The greatest difficulty arising from a lack of means, he said, was a tendency on the part of one department to try and eat up another. He favors a solid, intensely agricultural school, and advised the Kansans to spend more money in the departments of horticulture and animal husbandry. He considers that the professors of the Kansas college are greatly overworked, and said he would feel as though he were crucifying his instructors at Madison if he exacted as much from them as is required from the ones at Manhattan.—*Nationalist*.

The following table shows the enrolment of students for the present winter term, as it stood last Friday noon. The assignments for the winter term of 1901 are given to show the increase or decrease for the present year:

| | 1901 | 1902 |
|------------------|------|------|
| Seniors..... | 63 | 54 |
| Juniors | 83 | 98 |
| Sophomores..... | 161 | 218 |
| Freshmen..... | 320 | 353 |
| Preparatory..... | 176 | 167 |
| Totals..... | 803 | 890 |
| Special | 8 | 8 |
| Dairy | 70 | 67 |
| Farmers..... | 109 | 126 |
| Totals..... | 990 | 1091 |

This does not include graduate and apprentice students. The Total enrolment for the term will probably reach 1200.

The following books have recently been added to the College library:

Elements of Botany, Darwin.
 Dictionary of Flowering Plants and Ferns, Willis.
 Structural Mechanics, Greene.
 Manual of American Waterworks, Baker.
 Steam Engine Indicator, Peabody.
 Practical Physiology of Plants, Darwin.
 Hydraulics, Mansfield.
 Science Series, No. 74—Testing Machines, Abbott.

How to Plan Home Grounds, Parsons.
 Text-book of Physics, Watson.
 Spinning Tops, Perry.
 Heat for Advanced Students, Edser.
 Elementary Lessons in Electricity, Thompson.
 Modern Views of Electricity, Carhart.
 Huxley, Chalmers.
 H. K. F. Von Helmholtz, McKendrick.
 Periods in European History, seven volumes.
 Town Life in the Fifteenth Century, Green.
 Story of a Child, Loti.
 Study of Religion, two volumes, Martineau.
 Text-book of Physics, Hall.
 Gardens, Ancient and Modern, Dent.
 Dictionary of Philosophy and Psychology, Baldwin.
 Herbart and Herbartians, De Garmo.
 Handbook of Domestic Science, Wilson.
 Diet in Sickness and Convalescence, Winthrop.
 Cost of Foods, Richards.
 Air, Water and Food, Richards.
 Water Supply, Mason.
 Expert Waitress, Springstead.
 Diet in Sickness and Health, Hart.
 Boston Cooking School Cook Book, Farmer.
 Salads, Sandwiches, etc., Hill.
 Bread and Breadmaking, Rorer.
 Wheat Problem, Crookes.
 Early Tudors, Moberly.
 Age of Wycliffe, Treveleyn.
 Principles and Practice of Medicine, Osler.
 Chemistry of Cleaning and Cooking, Richards.
 Food Materials and Adulterations, Richards.
 Social England, six volumes, Traill.
 Animal Breeding, Shaw.
 Theory of Equations, Burnside.
 Experiments with Alternating Currents, Tesla.
 Grasses, Ward.
 Mill-Building Construction, Tyrell.
 Select Plans of Engineering Structures, Osborne.
 Proceedings of the Society for Promoting Engineering Education.
 Science of Roadmaking, Herschel.
 Plant Physiology, MacDougal.
 Strength of Materials, Kent.
 Soap Bubbles, Boys.
 Electricity, Larden.
 Municipal Corporations, Dillon.
 Plant Physiology, Ganong.
 Plant Histology, Chamberlain.
 Old-time Gardening, Earle.
 Education of the American Citizen, Hadley.
 Laundry Manual, Balderston.
 Comparative Administrative Law, Goodnow.
 Life Everlasting, Fiske.
 Public Worship, Hylan.
 Garden of a Commuter's Wife.
 Our National Parks.
 Agricultural Bacteriology, Conn.
 Landscape Gardening, Waugh.
 Elizabeth and Her German Garden.
 Practical Electricity, Ayrton.
 Law of Psychic Phenomena, Hudson.
 Skizzen, Schoach.

The use of the library constantly increases, there frequently being two hundred students at work in the room at one time.

ALUMNI AND FORMER STUDENTS.

A new division has been created in the post-office department, comprising the states of Kansas, Nebraska, Oklahoma and Indian Territory. The division headquarters is at Kansas City and J. R. Harrison ['88] is to be inspector in charge. Mr. Harrison is well known here and his friends will be glad to learn of his recent promotion.—*Mercury*.

The beauty contest conducted by a St. Louis paper resulted in the selection of Mrs. S. F. Cravens, of Ottawa, as the most beautiful woman in Kansas. Mrs. Cravens was born in this city and lived here until her marriage. Her maiden name was Etta Dent [second year student 1883] and she is well known in this vicinity.—*Nationalist*.

A December number of the *Central Law Journal*, published in St. Louis, Mo., contains as leading article a paper by T. E. Lyon on the subject, "What is the Power of a State to Restrict or Forbid the Doing of Business within its Territory by a Foreign Corporation?" Tom graduated from K. S. A. C. in '93, and from Ann Arbor, law department, in 1900. He is now located in Springfield, Ill. His many friends are proud of the advancement he is making in his chosen profession.—*Nationalist*.

Judge Sam Kimble ['73] took his seat on the bench of this judicial district Monday morning. In a short address to the members of the Riley county bar, he said he felt highly honored in being selected to fill the difficult office of district judge and that he would endeavor to do his duty as it presented itself to him. He also re-appointed Fred R. Smith ['93] to be official court reporter for another year. Mr. Kimble is known in this section of the country, and in fact throughout the State, as a lawyer of experience and ability. Every law-abiding citizen should give the new judge his moral support, to the end that the laws be faithfully and economically administered.—*Mercury*.

A LAST TRIBUTE.

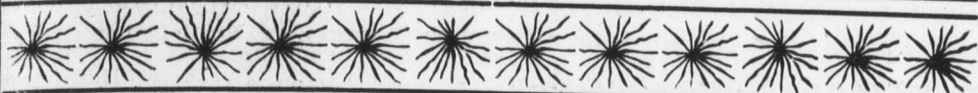
Since, to our great sorrow, death has removed one of our most beloved classmates, Mr. Alexander G. Wilson, '99, we wish to record briefly our estimate of his worth and character, and to express to his loved ones the very high regard in which we held him: Therefore be it

Resolved, That we, the members of the class of '99, extend our deepest sympathy to his bereaved relatives and friends, for their loss has been ours, and commend them to the grace of the Heavenly Father, the Physician whose balm heals all wounds. Be it further

Resolved, That a copy of these resolutions be sent to his relatives and printed in the College papers and in his home paper.

A. T. KINSLEY,
F. E. JOHNSON,

Resident members, '99.



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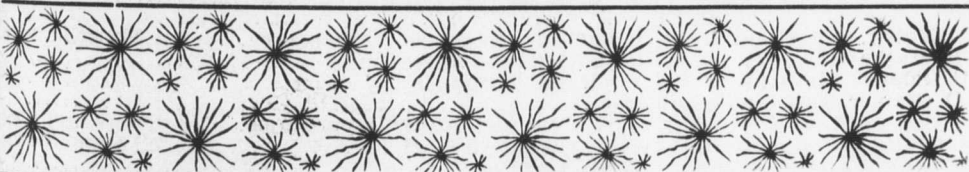


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THE INDUSTRIALIST.

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No. 15

BABY BEEF.

IN THE latter part of October, 1900, the Kansas Experiment Station put into the feed lot one hundred thirty head of calves that had just been weaned. They were divided into lots to test the value of alfalfa hay, prairie hay, corn, Kafir-corn, and soy beans in the production of baby beef.

Sixty head of heifer calves were purchased in the Kansas City stock-yards, weighed an average of four hundred eighteen pounds each, cost \$4.25 per hundredweight at the yards, and cost an average of \$18.25 per head delivered in the College feed lot. These were range calves, grade Shorthorn, Hereford, and Angus. Fifty head were purchased of farmers near Manhattan and had been kept with their dams through the summer in small pastures. Twenty head were mixed-bred calves that had been purchased around Manhattan when born and had been raised at the College by hand, ten being raised on creamery skim-milk and ten on whole milk. The calves were vaccinated to prevent black-leg. Without this safeguard we should not have dared to undertake the experiment. All lots were fed twice daily all they would eat, water and salt were always before them, and they were sheltered in common board sheds open to the south. The yards were fenced with woven wire.

The calves were fed seven months with the following results:

| FEED. | Av. gain per head, in pounds..... | Grain per 100 lbs gain. Pounds. | Hay per 100 lbs gain. Pounds. |
|---|-----------------------------------|---------------------------------|-------------------------------|
| Alfalfa hay and corn..... | 407 | 470 | 544 |
| Alfalfa hay and Kafir-corn..... | 379 | 524 | 626 |
| Prairie hay, corn two-thirds and soy beans one-third..... | 378 | 520 | 486 |
| Prairie hay, Kafir-corn two-thirds and soy beans one-third..... | 342 | 594 | 539 |
| Skim-milk calves, alfalfa hay and corn..... | 440 | 439 | 436 |
| Whole-milk calves, alfalfa hay and corn..... | 404 | 470 | 420 |

At the close of the experiment, May 27, the entire lot averaged 800 pounds per head in the College feed lots. The shrinkage in

shipping to Kansas City was three per cent. Thirty-two steers averaged 838 pounds and sold at \$5.40 per 100 pounds, seventy-four heifers averaged 758 pounds and sold at \$5.35, and eighteen heifers averaged 741 pounds and sold at \$5.15. Six head of heifers went as springers.

The 32 steers dressed 57.2 per cent and tallowed 6.1 per cent. The 74 heifers dressed 57 per cent and tallowed 6.3 per cent. The 18 heifers dressed 56.6 per cent and tallowed 6.6 per cent.

Demand for Baby Beef.—The packers report that they have never been able to supply the demand for baby beef and that there is no likelihood of the market becoming oversupplied, even though stockmen generally should go to producing it. The best demand and the highest prices are in the months of April, May, and June. During these months butchers want light cuts and they find much less waste in baby beef than in that from larger cattle. After July 1 the price for baby beef has a tendency to become lower, as light grass-fed cattle compete. The best prices are obtained for well-fattened calves weighing from 600 to 1000 pounds. Calves either above or below these weights do not top the market. The age should be from twelve to fourteen months.

Advantages of Baby Beef.—The production of baby beef makes a great saving in feed. The remarkable feature of this experiment is the small amount of feed required to make 100 pounds of gain. Last year the Kansas Experiment Station reported making 100 pounds of gain on 1000-pound steers with 718 and 780 pounds of corn. Many old feeders wrote us that they could not make such gains with so little feed. Professor Henry reports that he finds the average in a large number of feeding experiments with steers to be 100 pounds of gain for 1000 pounds of grain and 500 pounds of roughage. These calves averaged 100 pounds of gain for from 439 to 594 pounds of grain and 426 to 626 pounds of hay, about one-half the amount required for mature cattle, and the calves sold for as high prices per hundred as the same quality of mature steers.

The production of baby beef returns high prices for the heifers. These calves were put in the feed lots at weaning time and were probably a little over a year old when sold in Kansas City, May 29. The 32 steers sold at \$5.40 and brought an average of \$45.29 each, 74 of the best heifers sold at \$5.35 and brought \$40.60 each, and the 18 poorest heifers sold at \$5.15 and brought \$38.20 each.

All the steers were home bred, while 60 of the heifers were range bred.

For equal weights and quality, the packers will pay as much for fat year-old heifer calves as they will for steers at the same age, and this is the only time in the heifer's life when she will bring as much, pound for pound, as a steer.

The prices secured for these year-old heifer calves were fully as great as would have been secured if they had been kept under usual conditions and marketed two years later. The production of baby beef gives quick returns on the investment. The farmer who raises and fattens mature steers has to furnish pasture for his cows, the yearlings, the two-year olds, and often for the three-year-old steers. He waits three years from the time the calf is born until he realizes on the investment and only one fourth of his herd are cows producing calves. If the farmer will produce baby beef, he can fill his pasture to the full limit with cows producing calves and he will realize on the calves twelve months from the date of their birth.

The production of baby beef offers greatly increased profits to the dairyman. Experiments made at the Kansas Experiment Station show that the scrub cows may be bought at ordinary prices and if selected for dairy form will produce from \$50 to \$75 worth of milk per year per cow at creamery prices. Our calves fed creamery skim-milk until weaning made the greatest gains in feed lots and sold at \$40 and \$45 per head. This shows that a gross income of from \$90 to \$120 per cow can be made by the dairyman who will push both cow and calf. When a farmer can sell a skim-milk calf for \$40 to \$45, as we sold these, it adds largely to the profits from dairying.

How to Produce Baby Beef.—The calves used in this experiment were "common bred" ones and they made good gains. The farmer whose business was producing baby beef would use the best type of bull that he could secure—short legged, thick meated, blocky, and quick maturing. No experiments have been made to test the matter, but general observation indicates that the quickest growth and heaviest weight at a year old can be secured by judiciously crossing the beef breeds, using high-grade cows of one breed and pure-bred bulls of another. With good breeding and good feeding an average weight of 1000 pounds may be secured at 12 to 14 months of age.

Where dairying and baby beef are to be carried on together the greatest income may be secured by selecting good-sized grade beef cows that are good milkers and crossing them with pure-bred beef bulls of the quick maturing type. Such cows are found in every community in eastern and central Kansas. The high-grade Shorthorn with prominent dairy points is an example. Such cows will give from \$50 to \$75 worth of butter fat each year at present prices, and their calves, when marketed as baby beef, will bring \$40 to \$50 each. In every case, home-grown stock made the best gains. In the first four lots, there were in each lot 15 range calves and five calves that had run with their dams in small pastures under ordinary farm conditions. The home-grown calves made an average gain per head of 399 pounds, the range calves 369 pounds.

In three lots that were fed alfalfa hay and corn, range calves gained an average of 396 pounds each, calves that ran with their dams in small pastures 436 pounds each, and calves raised on skim-milk 440 pounds each.

The tamer calves are when they go in the feed lots the better the gains and the cheaper every pound of gain is put on. The farmer who raises his own stock and pets them has every advantage in producing beef cheaply over the ranchman and over the feeder who buys at the stock-yards and gets calves that have had all the loss and excitement of shipping.

Alfalfa hay and corn gave the greatest gains, followed by alfalfa hay and Kafir-corn. At all times through the seven months feeding the calves fed alfalfa hay appeared to be in the best condition, and they finished the best. The corn and Kafir-corn were fed whole for a little over half the experiment and were then ground for the finish. The soy beans balanced up the prairie hay and corn and Kafir-corn, helping to secure good gains with these feeds, though not as good as was made by alfalfa.

Kafir-corn did not show as good gains as corn, but the calves did well on it and it will be a profitable grain to grow on upland and in the dry regions of the West for feeding for baby beef. The farmer who produces baby beef should raise alfalfa and make it the basis for feeding both cow and calf. Cow peas, soy beans, field peas and clover hays may be used to give variety, and all these crops increase the fertility of the soil, as well as supply the best feed at the least cost.

H. M. COTTRELL.

CORN IMPROVEMENT.

(Press Bulletin No. 110, issued from Chemical Department.)

The superiority of our present varieties of plants over those grown even within the memory of those of us in middle life, is very great in many instances. The results achieved with some are indications of those that are possible with many, perhaps all. In the case of staple crops the improvement possible, even if it should prove to be but in small degree, may in the aggregate be of great economic moment. Seedsmen and farmers naturally give their attention to the external and physical qualities and the yield, rather than to the chemical composition. The Chemical Department of the Experiment Station has shown that there are significant differences in the composition, not only of different varieties of corn, but in that of different ears of the same variety, and even of the individual kernels of a given ear. Analyses by the Kansas Station and by others have shown that the germ is much richer in nitrogen than the rest of the kernel. By selecting as seed, from year to year, the ears of corn in which, as a rule, the kernels possess larger germs, a strain can be secured which will be richer in nitrogen, as this Station and others have abundantly shown that this property is inheritable. By making cross-sections of the tips of a number of kernels from each of several ears, it is quite feasible to select the ears which are richer in nitrogen. It is said that inspection enables one to select corn in which the parts of the kernel exclusive of the germ are richer or poorer in starch, and consequently, poorer or richer in nitrogen, respectively. While this may be true, it seems to be less easy of application, and less practical, as feeders prefer corn that is not hard and flinty, even though it may contain less nitrogen. There is no similar difficulty complicating the selection of corn by the size of the germ, other things being equal. In fact, larger germs add to the value of corn by their much higher percentage of fat as well as by their higher percentage of nitrogen.

The Station is making efforts to establish improved varieties of corn, selections being based, in part, on the percentage of nitrogen, and with as much success as could reasonably be expected, in view of the almost total failures of the crops on account of drought the last two years. The ease with which corn cross-fertilizes makes these experiments very difficult, especially when any effort is made to obtain a considerable quantity of a given variety in a state of purity.

To assist farmers in the State who wish to improve the chemical composition of their corn, the Chemical Department has arranged to make determinations of the percentage of nitrogen for them at cost. Although on account of the scarcity of home-grown corn this season, the time is not as opportune for starting the development of improved strains of corn as would be desirable, it is hoped that some will avail themselves of the offer. Analyses of the same kind will be made of seed-corn offered for sale where desired, and the department is making such analyses on its own account also.

That corn would be an appreciably more valuable grain for feeding, if it were richer in nitrogen, there can be no reasonable doubt, and the farmer who will systematically set about developing a strain of an otherwise good variety that is richer in nitrogen, will be a public benefactor, and doubtless will reap an ample financial reward. It is probably needless to state that corn that is being thus developed should be planted at a considerable distance from any other. Persons desiring corn analyzed should write the Station for instructions and terms before sending samples.

J. T. WILLARD.

WINTER-TERM PROGRAM, SHOWING INSTRUCTOR.

| INSTRUCTOR. | First Hour. | Second Hour. | Third Hour. | Fourth Hour. |
|----------------|---|---------------------|--------------------|--------------------|
| Walters..... | Farm Arch....31 | Proj. Draw....36 | Geom. Draw..45 | Special Draw...3 |
| Evans..... | Obj. Drawing..11 | Obj. Draw....31 | | Obj. Draw.....14 |
| Brown..... | Singing, Notation, Orchestra, and Band..... | | | |
| Brown, H..... | String and Wind Instruments..... | | | |
| Harris..... | Piano..... | | | |
| Willard*..... | Ch. Foodst...41 | Ch. Foodst...21 | Ch. Metals...62 | Ch. Metals...68 |
| Weida..... | Chemistry I..37 | Chemistry I..33 | Org. Ch.†...62 | Org. Ch.†...68 |
| Weber*..... | Chemical Analyses..... | | | |
| Mathewson..... | | | | |
| Cottrell*..... | Feeds & F....28 | Feeds & F....38 | Feeds & F....29 | Feeds & F....34 |
| Shoemith*..... | | Breeds & B...34 | Breeds & B...34 | Agriculture†...36 |
| Popenoe*..... | Entomology...36 | | Zoölogy.....20 | Sp. Ent.....2 |
| Norton*..... | | Entomology...1 | | Entomology...2 |
| Cramer..... | Physiology...38 | Physiology...30 | | |
| Remick..... | Algebra III...37 | Calculus....12 | Geom. II.....26 | Algebra III...26 |
| Anderson..... | Trigonometry..39 | Ceometry II..29 | Algebra III...35 | Trigonometry..31 |
| Goodell..... | Civics.....44 | Civics.....39 | Gen. Hist....33 | Gen. History...47 |
| Roberts*..... | | Botany.....25 | Phys. Botany..19 | Phys. Botany..21 |
| McKeever..... | German.....10 | Phil. of Ed...13 | Logic.....28 | Eng. Read. II...37 |
| Berry..... | Eng. Lit.....16 | Eng. Lit.....29 | Themes.....32 | Am. Lit.....31 |
| Rupp..... | Eng. Read. II..35 | Eng. Read. II..21 | Eng. Read. I...45 | Themes.....38 |
| Hartman..... | Light & Sound..11 | Dyn. Elec....5 | Physics.....38 | Physics.....24 |
| Hamilton..... | Physics.....39 | Physics.....48 | Algebra II...37 | Physicst.....23 |
| Clure..... | Oratory I....20 | Oratory III†...2 | Oratory I....16 | Oratory II....37 |
| McCormick..... | | Eng. P. P.....2 | App. Mech....7 | |
| Sawdon..... | | | Mechanics....47 | |
| House..... | Carpentry....23 | Carpentry....27 | Carpentry....29 | Carpentry....33 |
| Wabnitz..... | Apprentices..... | | |12 |
| Gasser..... | Blacksmithing..... |20 | Blacksmithing..... |20 |
| | Apprentices..... | | |9 |
| Ridenour..... | Foundry..... |13 | Foundry..... |11 |
| Otis*..... | Dairying.....31 | Dairying.....32 | | Dairying.....34 |
| Webster*..... | Bookkeeping†..28 | Bookkeeping...30 | Bookkeeping...36 | |
| Curtis..... | Dairying.....30 | Creamery Practice.. | Mondays..... |35 |
| McIntyre..... | Emerg. Lec...22 | H. Economy...45 | | |
| Agnew..... | | | H. Economy...36 | |
| Mayo*..... | Vet. Sci.....15 | Dis. F. An.†...32 | Dis. F. An....35 | Dis. F. An....39 |
| Kinsley*..... | | Bacteriology†..32 | Bacteriology..32 | Bacteriology..32 |
| Howell..... | | Dressmaking...14 | Dressmaking...14 | |
| Jones..... | Sewing 3 & 4...14 | Sewing II....19 | Dressmaking...6 | Sewing 3 & 4...7 |
| Paddock..... | Sewing II....16 | Sewing I....14 | Sewing I....12 | Sewing II....12 |
| Rickman..... | Printing.....7 | Printing.....2 | Printing.....4 | |
| | Apprentices..... | | |4 |
| McFarland..... | | | | Bookkeeping...36 |
| Rice..... | | Eng. Read. I...39 | | Eng. Read. I...39 |
| Holroyd..... | | | | |
| Mather..... | | | | |
| Dickens*..... | Horticulture...35 | Horticulture...14 | | Horticulture...35 |
| Greene*..... | Pomology....1 | Forestry.....2 | | Floriculture...13 |
| Baxter..... | | | |7 |
| Lund..... | Engine and Boiler | Apprentices..... | | |
| Spi man..... | Eng. Read. I...43 | | | |
| Thompson..... | Algebra II....34 | Algebra II....33 | | Algebra II....32 |
| Dean..... | | Geometry I....36 | Geometry I....25 | Algebra II....31 |
| Bowen..... | | | | |
| Ritchie..... | | | | |
| Mudve..... | | | | |
| Noyes..... | | | | |
| McKeen..... | | | Sewing I....21 | |
| Loomis..... | | | | |
| Knotman..... | | | | |

† First half term.

‡ Second half term.

* Experiment Station Work.

Morning Class Hours:

(Tu. Wed. Thur. Fri. Sat.)

1. From 9:05 to 9:50.
2. From 9:55 to 10:40.
3. From 10:45 to 11:30.
4. From 11:35 to 12:20.

SUBJECTS, AND NUMBER IN CLASS.

| Fifth Hour. | Sixth Hour. | Seventh Hour. | Eighth Hour. |
|--|---|------------------------------|--------------|
| Geometrical Drawing.....24 | | | |
| Object Drawing.....Tu. & Th., 15 | | | |
| Freehand Drawing.....W., 51 | | | |
| Chemistry Fourth Hour.....23 | | | |
| Chemical Laboratory.....Tu., W. & Th., 70 | | | |
| Chemical Laboratory.....128 | | | |
| Agriculture†.....83 | Agriculture†.....62 | Farm Practice, Monday.....25 | |
| Breeds & B.†.....67 | Breeds & B.†.....54 | | |
| Zoology Laboratory.....21 | | | |
| Botany Laboratory.....20 | | | |
| Agricultural Phys... 11 \| Elect. Laboratory... 4 | | | |
| Machine Design.....Tu., 7 | | | |
| Mechanical Drawing.....W. & F., 24 | Apprenticed Drawing.....W. & F., 30 | | |
| Eng. Laboratory.....W. & F., 3 | | | |
| Graphics.....Th., 24 | Lecture.....48 | | |
| Carpentry.....Tu. & Th., 12 | Carpentry.....Mondays. A. M., 48; P. M., 40 | | |
| Machine Shop.....Tu., 22 | Machine Shop.....Mondays, A. M., 22 | | |
| Machine Shop.....W. Th. & F., 50 | | | |
| Blacksmithing.....W. & F., 19 | Blacksmithing.....Monday, A. M., 39 | | |
| Blacksmithing.....Tu. & Th., 9 | Blacksmithing.....Monday, P. M., 20 | | |
| Foundry.....Tu. & Th., 10 | Foundry.....Tu. & Th., 13 | | |
| Foundry.....W. & F., 4 | | | |
| Milk Testing.....22 | | | |
| Milk Testing.....Mondays A. M. & P. M., 11 | | | |
| Cheese Making.....5 | | | |
| Butter Making.....Monday 11 | | | |
| Domestic Science II.....63 | | | |
| H. E. Laboratory.....22 \| | H. E. Laboratory.....Tu. & Th., 41 | | |
| Special Bacteriology Before Chapel.....14 | | | |
| Dressmaking.....Tu. & Th., 14 | | | |
| Dressmaking.....W. & F., 14 | | | |
| Dressmaking.....Tu. & Th., 6 | | | |
| Printing.....39 | | | |
| Apprentices.....3 | | | |
| Algebra I.....35 | Bookkeeping.....32 | | |
| Composition.....33 | Composition.....29 | Algebra I.....34 | |
| Grammar A.....45 | Algebra I.....28 | History A.....34 | |
| Physiology.....34 | History A.....37 | | |
| Industrial Hort.....21 | | | |
| Engine and Boiler Practice one day per week.....61 | | | |
| Algebra I.....25 \| | History B.....42 \| Arithmetic B.....39 | | |
| Grammar B.....23 | | | |
| Geography.....23 | | | |
| Reading & Spelling.....12 | Arithmetic A.....48 \| Arithmetic A.....36 | | |
| Grammar A.....36 | | | |

Afternoon Class Hours:

(Tu. Wed. Thur. Fri. Sat.)

5. From 1:35 to 2:20.
6. From 2:25 to 3:10.
7. From 3:15 to 4:00.
8. From 4:05 to 4:50.

Afternoon Industrial Hours:

(Tu. Wed. Thur. Fri.)

5. From 1:30 to 2:30.
6. From 2:35 to 3:35.
7. From 3:50 to 4:50.
8. From 4:55 to 5:55.

MAKERS OF THE KANSAS STATE AGRICULTURAL COLLEGE.

IN volumes 24 and 25 of the INDUSTRIALIST the writer of this has published a series of biographical articles concerning some of the most prominent early makers of the Kansas State Agricultural College. These articles contain pen sketches of Presidents Denison and Anderson, Professors Mudge, Lee, Ward, and Shelton, and Regents Wood, Coburn, and Secrest. They were written to preserve for the future some glimpses of the characteristic qualities of the men who gave the best of their life efforts to the work of founding and upbuilding of this grand institution—one of the grandest of its kind in the world. Many of these early pioneers in the vineyard of common-sense education are dead and many are visibly nearing the grave. They deserve to be remembered by the future, for nowhere in all civilization did men work harder and with more singleness of purpose than did these heroes of practical education for the farm and for the shops—a system of education that has had to meet the fortified prejudice of centuries on one battle-field after another ever since its inception fifty years ago.

The former biographies of this series were accompanied by full-page half tone portraits. We regret that we are unable to give the photos of the two men whose names are given below, all the more because both of them have long since gone to their last resting places.

X. HON. I. T. GOODNOW.

Hon. Isaac T. Goodnow was born in Whitingham, Windham county, Vt., January 17, 1814, and was in his eighty first year when he died. At the age of fourteen he became a merchant's clerk, and at the age of twenty entered the academy of Wilbraham, near Springfield, Mass., where he remained fourteen years, first as a student, then as instructor in the primary and English departments, and then as professor of natural sciences, which latter position he held for ten years. In 1848 he was called to the same chair in Providence Seminary, at East Greenwich, R. I., which he filled for six years. In 1838 he was married to a sister of Rev. Joseph Denison, and in 1855 he started, in company with Denison, for Kansas, settling in March of that year on a claim near Manhattan now owned by J. F. Swingle. In 1857 he returned East and raised \$4000 for building the Manhattan Methodist church (now the Roman Catholic church). Then, in connection with Joseph Denison, Washington Marlatt, and others, he established Bluemont College, again visiting the East and securing \$15,000 in cash, a library of two thousand volumes, and some philosophical apparatus. As a member of the State legislature he secured the

passage of a bill locating the State University at Manhattan—the bill that was vetoed by Governor Robinson, of Lawrence. In the fall of 1862 he was elected State superintendent, and reelected in 1864. As superintendent of public instruction he was *ex officio* a Regent of the Agricultural College. In 1867 Professor Goodnow was selected agent to dispose of the ninety thousand acres of land belonging to the College. Two years later he became land commissioner of the M. K. & T. railway, and in the next seven years sold land amounting to over \$1,500,000. For nearly forty years Professor Goodnow had been a prominent public man back in his old home and at Manhattan. He left considerable property at his death, but had no children.

Professor Goodnow is remembered by his friends as a forceful and positive character and a plain, practical business man. He was the business manager of the old Bluemont College and of the Agricultural College during its early period, and became its financial advisor during the chronic financial difficulties before the reorganization in 1873.

XI. PROF. J. S. HOUGHAM.

Prof. John Scherier Hougham, the first regular professor of agriculture and physical science at the Kansas State Agricultural College, was born at Connersville, Ind., May 28, 1821, and died of pneumonia at his handsome suburban home near Manhattan, March 31, 1894, aged 73 years. He was educated at Wabash College, Crawfordsville, Ind., where he graduated in 1846. In September of this year he became principal of mathematics and physics in Franklin College, Ind., at a salary of \$400. The college was very poor financially, but Professor Hougham stayed by it for sixteen years and helped to make it a much sought educational institution. In 1868 he accepted the chair of agricultural science in the Kansas State Agricultural College and stayed here for four years. It was a difficult position to fill and there were no funds for the development of his department. It was the old story of being asked to make bricks without straw. His offer to lend some money to the College for necessary expenses was accepted, but it brought him much trouble and led to his resignation. In 1872 he accepted the chair of agricultural chemistry in Purdue University, Lafayette, Ind., where he remained until 1876, after which he gave his attention chiefly to his personal affairs. In a brief autobiography which Professor Hougham inserted in his history of Franklin College occurs the passage: "There are two things for which I earnestly plead: First, a small funeral; second, a very brief, if any, obituary notice." His friends thought otherwise and gave him a large funeral and copious obituaries.

J. D. WALTERS.

THE INDUSTRIALIST.

*Published weekly during the College year by the
Printing Department of the*

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

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LOCAL NOTES.

The Dairy Department is constructing a concrete floor in the cheese cellar.

The Dairy Department has received a handsome new Underwood typewriter.

Doctor Mayo has been elected honorary veterinarian to the State Board of Agriculture.

Doctor Mayo was called to Halstead on his live-stock sanitary work, Saturday, January 18.

Dr. E. K. Chandler, professor of history at the University, Ottawa, Kan., was a welcome visitor Monday.

The dairy school is making about three hundred pounds of butter per day. The milk receipts are about twelve thousand pounds per week.

Parties who wish to buy College creamery butter may get it at Wood & Spaulding's grocery store, at Manhattan, or call at the College creamery.

The dairy-school students will have a public debate in Agricultural Hall on February 3. Subject, "Best Breed of Dairy Cattle for Kansas Conditions."

A. McCombs, agent for the well-known Sharples separator, visited College last week and made arrangements to loan the dairy school two of their machines.

Prof. J. D. Walters read a paper on the "History of the Kansas State Agricultural College" before the annual meeting of the State Historical Society, at Topeka, last Thursday.

Buttermilk has become such a popular beverage at the Agricultural College that the Dairy Department has found it necessary to restrict the free drink system hitherto in vogue. The nectar is now stored in the northwest room of Agricultural Hall and costs a cent a drink or a nickel a gallon.

Contractor Chas. Fellows, of the new Physical-Science building, has lost his wife, her death occurring Sunday evening, January 19, at Topeka. Mrs. Fellows had been an invalid for years. She was taken to Stormont hospital for an operation Saturday, and did not rally from the effects of it. She had lived in Topeka for sixteen years, ever since her marriage to Mr. Fellows, and was the mother of two children, a boy of fourteen and a girl of twelve.

The Dairy Department has commenced the making of cheese. Superintendent Webster says it will take three weeks before it can be sampled with profit and pleasure; that is, it will not be ripe by the time of the editorial convention.

The Farm Department has lately received a Cyphers incubator, a George Ertels' hatcher, and a Stahl's Excelsior incubator. These incubators will be charged and started so that they will hatch their broods during the week of chicken scoring, February 17 to 22.

During the year 1901 the Veterinary Department has prepared and sent out 122,285 doses of double blackleg vaccine and 88,020 doses of single, making a total of 210,305 doses. This vaccine was distributed free to Kansas breeders, the department charging simply a reimbursement of expenses incurred in its manufacture and distribution.

The new Physical-Science building is growing rapidly. Last week the stone-masons commenced the last belt course of the stonework on the west wing. The cold weather forced them to quit work for a few days, but the carpenters never gave up. A week of favorable weather will enable the masons to get the west wing ready for the roof and three weeks of fair weather will complete all the rough stonework. The building begins to loom up proudly in the college landscape.

Sec. T. A. Borman, of the Kansas Dairy Association, writes that he has the promise of a large number of prominent men for the program of the annual meeting which will be held at this College March 4 to 7. Among the names that will appear with addresses or papers are Mr. Watson, of Fort Kearney, Neb; Professor McKay, of Iowa; Editor Wallace, of *Wallace's Farmer*; Maj Henry Alvord, Washington, D. C.; T. L. Huxtible, of Wichita; Editor E. B. Cowgill, of the *Kansas Farmer*; Professors Cottrell, Ois, and Webster, of this College. The meeting promises to be the best ever held by the association. It is expected that several hundred farmers will be in attendance.

The coming meeting of the State Editorial Association promises to be one of the best ever held. The people of Manhattan are making plans for entertaining the newspaper people which will show the cordiality of their welcome. There will probably be some agreeable surprises in store for the editors and their wives. The program is not long, but contains the names of some of the brightest men in the Kansas newspaper field. The opportunity given to become acquainted with the work of the State Agricultural College, the largest in the world, will be appreciated by every one. The whole meeting is arranged so that business and pleasure will be agreeably mixed. Come, expecting to stay the entire session. There will not be a moment of waste time, and the ideas you gain about your business may mean dollars in your pocket. The good fellowship with your brother editor will make you a happier and better man.

ALUMNI AND FORMER STUDENTS.

H. M. Thomas, '98, is travelling for the Ferguson Implement Company, of Kansas City.

O. I. Purdy, '99, is giving great satisfaction to his employers, in the capacity of city circulator for the *El Reno Daily American*.

Bertha J. Spohr, '98, is on the program of the Stark county farmers' institute, Wyoming, for a paper on "Home and Home Influences."

Mr. H. P. Nielsen has presented the Farm Department with a bundle of Yarrsloff winter wheat and Banner oats raised by him at the Kenai, Alaska, experiment station. The specimens are veritable beauties. Mr. Nielsen was a third-year student in 1898.

While attending a farmers' institute at Seneca, the editor had the pleasure of meeting Judge Wells, and was much interested in learning that he was a student at this institution during its first term, that is, in the fall of 1863. It has been his privilege to watch its entire growth, and while a member of the court of appeals it became his duty to pass upon a legal point radically affecting the institution.

Mark Wheeler, '97, first lieutenant, Fourth United States Infantry, arrived in San Francisco with his company last week. Lieutenant Wheeler has been in constant service in the Phillipines for the last three years, and during much of that time he has been in command of the company. He will doubtless be as glad to get back as his friends will be to welcome him. His regiment will be stationed in Texas for a time to accustom the men to a temperate clime.

Mr. Charles H. Sternberg, a student of this institution in the seventies, has prepared a lecture on "The Life of a Fossil Hunter" which he would be glad to deliver here if arrangements can be made. Mr. Sternberg obtained his first inspiration from Professor Mudge, then professor of geology here. For some twenty-five years he has been a professional collector, and has had the good fortune, or rather the reward of exceeding devotion to his work, to discover many very valuable fossils. These fossils have added much to the history of the development of animal life on the globe, and incidentally they have done much to make the reputations of the geologists into whose hands they have come, among whom are some of the greatest in the world. With our magnificent resources connected with practical every-day life, many of us do not know that our own State has furnished some of the most remarkable and valuable geological specimens that have ever been discovered. Labor, skill, boundless enthusiasm and scientific knowledge have combined to make Mr. Sternberg a great collector. A recital of a fraction of his experiences of a quarter of a century, at the institution where he drew his first breath of science, and about which the memories of his young manhood cluster, could not but be entertaining and instructive.

Program Kansas State Editorial Association.

Manhattan, Kansas, Monday and Tuesday, February 3 and 4, 1902

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Monday, February 3.

Meeting of Executive Committee to receive and pass upon applications for membership and other matters.

COMMERCIAL CLUB HALL, 2 O'CLOCK.

Appointment of Committees. Appointment of Historian.
President's Address.

The Country Publisher as an Historian, - - - Grant Harrington
Democrat, Hiawatha.

Discussion.—John P. Gilmore, *Citizen*, Fredonia; W. E. Blackburn, *Republican*, Anthony; F. M. Hartley, *Democrat*, Arkansas City.

Simply a Suggestion, - - - C. A. Kimball
Register, Courtland.

Discussion.—W. A. Mitchell, *Mirror*, Olathe; W. M. Jones, *Commercial*, Cedarvale; E. G. Nettleton, *Gazette*, Hutchinson.

OPERA-HOUSE, 7:30 O'CLOCK.

Address of Welcome. Response by President.

Address, - - - Music.
- - - William Allen White
Gazette, Emporia.

Music.

Adjournment to Commercial Club Hall for general reception and good time.

Tuesday, February 4.

The entire morning will be devoted to the Agricultural College, where the editors will be taken in carriages by the people of Manhattan.

OPERA-HOUSE, 1:30 O'CLOCK.

Some Things That Need Fixing, - - - J. E. House
Capital, Topeka.

Discussion.—S. H. Dodge, *Gazette*, Beloit; Clyde McManigal, *Commercial*, Horton; Frank Fockele, *Reporter*, Le Roy.

The Possibilities of a Tri-weekly Under the Rural Route System, E. G. Pipp
Chronicle, Burlingame.

Discussion.—D. T. Armstrong, *Beacon*, Great Bend; Ewing Herbert, *World*, Hiawatha; E. A. Wasser, *Press*, Girard.

How Shall the Official and County Printing be Awarded? J. Frank Smith
Observer, Pleasanton.

Discussion.—C. C. Painter, *Index*, Medicine Lodge; W. L. Chambers, *Record*, Stockton; W. D. Greason, *Republican*, Paola.

COMMERCIAL CLUB HALL, 7:30 O'CLOCK.

Second-class Mail-matter, - - - Mrs. Annie L. Diggs
Advocate, Topeka.

Discussion.—R. A. Anthony, *Times*, Leavenworth; S. A. Jones, *Call*, Beloit; Alvah Sheldon, *Times*, Eldorado.

A Must, - - - Victor Murdock
Eagle, Wichita.

Discussion.—M. M. Beck, *Recorder*, Holton; J. B. Fugate, *Journal*, Newton; Thos. Morgan, *Times*, Ottawa.

Twenty-five Years of Newspaper Enterprise, - - - Geo. W. Martin
Secretary State Historical Society, Topeka.

Question Box, - - - Conducted by D. A. Valentine
Times, Clay Center.

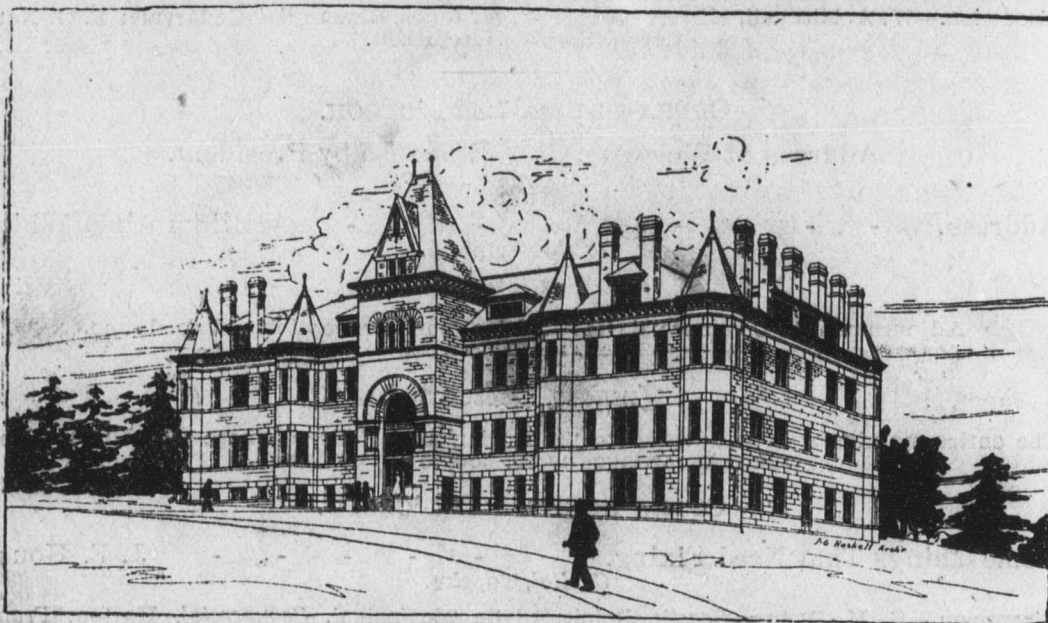
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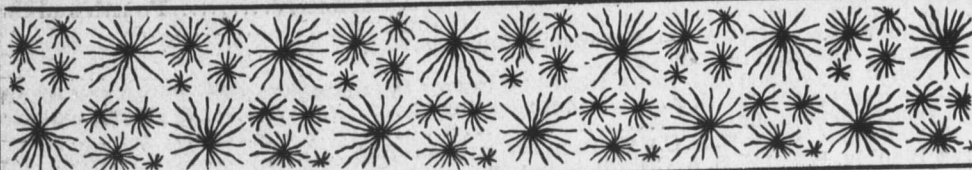


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PLANT TREES.

IF THERE is any one subject in which the present writer is profoundly interested, almost to the point of being a hobbyist, it is in the matter of forestry for Kansas. To anyone who comes here after seeing the wooded hills of New England and the forested slopes of the Alleghanies, or even to one to whom the surface of eastern Missouri is familiar, the bare, bleak, unwooded hills of Kansas are repellant and forbidding, and the long, dreary stretches of land lying in their unspeakable treelessness beneath the blazing sun and the driving southwest wind of summer furnish a far less beautiful picture than the winding river valleys with their noble forests rolling back to the summits of their bordering bluffs that one sees in the moister regions of the Eastern and Middle States.

The character of a people is inevitably moulded by its environment, and the treeless monotony of so much of the western half of our State, reacting from generation to generation upon our population, will deaden all the higher imaginative and creative faculties. While we want to raise great crops, we also primarily want to raise a superior type of men and women. To the development of this type, variety in the environment is absolutely necessary. A monotonous and unvarying landscape will make a dull people, devoid of imagination and lacking in interest. To be sure, we cannot make over the plains. Where there are no hills or mountains to vary the monotony and break the horizon, we cannot create them. But does anyone not realize that a forest on a perfectly level plain is an object of a vastly more varied and absorbing interest than the plain stripped of trees? There is an infinity of interest in the tree form of plant life. Every tree has an individuality and a character of its own. To the children of a community, I know of no other single form of living thing that has a greater educative value than a tree.

It may not be generally known, but the Scotch and the Aus-

trian pines will grow vigorously on the slopes of our limestone hills. If every farmer who has a tract of bare hill land would grow a few of these trees from year to year, the transformation of the bare, bleak, brown, forbidding, inhospitable hills into pine-clad slopes of living green would utterly change the landscape beyond the power of the present generation to realize.

Any observant person can see the progress which our native forests are making, wherever the hand of man and the grazing of cattle will permit. Up every ravine and cleft in the hills is marching the vanguard of the forest. Throwing out its skirmish lines along the lower sides of the hills, it presses its wedge-shaped mass of arboreal warriors up to the very heads of the canons until in time they wave green banners of victory from the summits. Victory over what? Victory over drought. Victory over the denuding and eroding processes of inorganic nature.

Down into the disintegrating limestone rocks of the hills go the roots of the perennial shrubs. These form a nurse for the protection of the seedling trees which, as they grow, hold fast the sliding soil of the side hill and build up the humus with their fallen and decaying leaves and branches. In this humus and under the protecting shade of the trees the waters which, in an arid region, pass off in rapid torrents, leaving dry, bare beds behind, are retained and slowly pass upward into the tissues of the trees. There, in combination with the carbonic acid gas from the air, which the leaves absorb, the water is made over into organic food substances, which go to the building up of what we know as timber. The water not thus employed gradually sinks into the soil, slowly to reappear in ever-flowing springs.

Let these forests spread over the hills, manage them on forestry principles, so that instead of an occasional reckless and sweeping denudation of all trees from the land the clearing shall be intelligently and scientifically conducted, so that the forest cover shall never be completely removed or the soil exposed to the agencies of denudation and destruction.

Every Kansas farmer who has a tract of woodland should get the bulletins of the United States bureau of forestry and learn how to utilize without destroying it. Every farmer who has no forest land should plant trees around his house for shade and beauty, should plant pines and cedars on his bare hillsides for the sake of the land and to hold the surface water. He should con-

sult experts in forestry before he decides to sweep his bottom-land bare of walnut timber to plant an uncertain and fluctuating crop of corn.

Break up the vast bare areas of prairie with tracts of woodland and the hot winds will disappear. Everywhere and all the time let us plant trees, plant trees, plant trees. Let us save all the trees we have. To this end let every man and woman in Kansas who has the best interest of coming generations at heart work to induce the next legislature to give us a State bureau of forestry and create State forest reserves. H. F. ROBERTS.

VITIS RIPARIA AS THE PARENT OF A WESTERN HARDY FAMILY OF GRAPES.

EVERY land has had to develop a horticulture peculiar to its conditions. The early settlers of New England spent much money and more time in useless experimentation with European varieties of grapes. All this might have been saved had they been more easily convinced that their vineyards must be filled with varieties from native species. It took American grape culturists until about 1823 to discover this through the Catawba grape, which they held was not a native even till the last ten years, and later they had to acknowledge the native species when Ephriam Bull introduced the Concord, about 1850.

The lessons that cost our Puritan fathers so much has cost the pioneers of the great plain states no less. Every old vineyard in the West is a history, in blackened stubs, of the failures of supposed hardy varieties brought from New England. When these varieties were tried in Kansas, where the winters are neither so long nor so cold, it was found that our dry, cold, windy weather killed them. Some other stock is needed for the parent of grapes throughout the western part of Kansas than the semi hardy *Vitis Labruska* of New England. *Vitis riparia* offers itself as this parent.

Vitis riparia is described by Professor Hitchcock, in his "Flora of Manhattan," as follows: "Leaves cordate, three lobed, incised-serrate, smooth." And further by Dr. Engleman. in Bushberg Catalogue, 1895: "Bunches mostly small and compact; berries small, black, with bloom, sweet, juicy, scarcely pulpy; seeds obtuse or slightly notched, with a narrow chalaza, raphe indistinct or very thin." The principal distinguishing features lie in the seed characters and in the extreme thinness of the diaphragm. In

the cane growth it is much like other species of the great plains, having many laterals which induce smallness of canes and an increase in the density of the shade furnished the fruit hanging beneath. It has the widest range of any of our native grapes. It is found from Canada to Texas and west to Colorado, showing its adaptation to great diversities in temperature, water content of soil and altitude. In the vicinity of Manhattan we have a great variety of soils, from the sand dunes of the south through the yellow clay to the limestone hills of the north and west. *Vitis riparia* is found growing in all these. On top of Bluemont hill a vine is found growing some hundred feet above the level of the river in soil very full of fine pebbles and larger rocks. Within six feet of the surface is a layer of impervious limestone from two to four feet thick. All along the range of hills in this section are many abandoned rock quarries, and *Vitis riparia* is among the first plants to begin the clothing of these places again with vegetation. Here it runs over rocks and climbs up the small cottonwoods, which are perhaps the first plants to gain a foothold. In the sand dunes the vines are very thrifty where the sand has been held together long enough for them to gain a foothold and where the land is protected from the grazing of animals. In the clay soil along the side hills the vines seem perfectly at home, running over the fences and among the dense clumps of buck bush in luxuriant foliage.

Under all these conditions there is absolutely no difference in the habits of the river grape except in the time of blooming. The vines in the sandy soil bloom three to five days ahead of those in the cold clay soils of the hills. In thriftiness the growth per season depends upon the water-content of the soil. During very wet seasons the grapes of the hills make very large growths, while in dry seasons the growth is much less and many more laterals are developed. These laterals protect the small bunches of grapes from wind and sun.

In the western part of Kansas the great drawback to grape-growing is "sun scald." In the middle and western parts of the State whole crops of the finest looking Concords have been destroyed in this way, while it has been noted that a near by Elvira, which has the river grape blood in its veins, seemed scarcely touched. The Elvira is a *Labruska-riparia* hybrid and the river grape seems to lend the hardiness while the fox grape gives the

size. This grape has been tried, with some success, as a stock for other more tender varieties. It seems to be able to draw its food from the ground in the most trying situations. This fact may make it as valuable to western Kansas as it has been to "Phylloxera stricken France."

The idea of using the river grape as a parent for a hardy family is not a new one. A very good start has been made by such men as Jacob Rommel, Nicholas Grein, and Charles Arnold. A little has been done by J. H. Ricketts and by Prof. T. V. Munson, of Texas.

Perhaps the Taylor, a hybrid between the Northern fox grape (*Vitis Labruska*) and the river grape, plays the most important part as a parent of hardy varieties of this species. Pearl, Faith, and Elvira, all of which are Rommel's Taylor seedlings, are hardy varieties and are worthy of a place in any vineyard. From one Elvira vine, in the Kansas Experiment Station vineyard, twenty-eight pounds of marketable grapes were picked against sixteen pounds of Concord from a near-by vine which seemed to have equal thrift. The products of both vines sold on the Manhattan market for the same price per pound.

Of Grein's seedlings, perhaps Grein's Golden is the best. In the Kansas Station's test of varieties for market the highest price, five cents per pound, was paid for this grape as a table variety in 1900. Missouri Reisling, another of Grein's seedlings, is a grape much like the Elvira in size and flavor, though the bunch is much more loose and the vines are not so prolific.

Little has been done towards the hybridizing of the *Vitis riparia* and the *Vitis vinifera*, the European grape, except by Charles Arnold, of Canada. Though he has done much, none of his varieties are of much value to the market. Some of them are very good grapes to eat from the hand, though all retain too much of the *riparia* sourness and gain not as much as might be desired of the other parent. With one parent so hardy, it seems as if a second cross might be made with ease on the more tender parent, and much better results might be hoped for. The main difficulty would be in the doubtful fertility of the second cross.

Of the pure *riparia*, but two are of importance to western grape culture, the Marion and the Clinton, neither of which are very productive, though the Marion is a very good grape when it is thoroughly ripe. It is described in notes taken by the Station as follows: "Bunch medium shouldered, compact; berry medium,

round, dark purple, with a heavy bloom; skin tough; pulp tough, juicy, sour, becoming sweeter when very ripe; seeds very large. The berries hang very well, some keeping in paper bags six weeks after the first ripening. A very valuable grape for a dry climate. It would be a very good wine or jelly grape."

The *Vitis riparia* in its wild condition offers scarcely less in palatability than does the *Vitis Labruska* in its wild state, its only disadvantage being in its size. The productiveness and hardiness of the species persists in its offspring. All the varieties of this species are said to be good wine grapes, many of them are good table grapes, and not a few are excellent shippers. Most of them look well in the basket. Grein's Golden has a tart flavor of its own that makes it excel most of the varieties offered on the market of the West as table grapes. In size and beauty of bunch it excels the Concord. Several other varieties may be said to rank second to this.

While none of this species are well known on the market there are several that deserve a place in every vineyard. We must grow the varieties that the market demands, but we may easily change the local demand and in doing this it is possible to change the demands of the shippers. Our little river grape deserves more attention than a mere glance in passing.

GEO. O. GREENE.

NEED OF STANDARDIZATION OF OUR WEIGHTS AND MEASURES.

THE last session of Congress appropriated a million and a quarter of dollars for the establishment of a national bureau of standards for this government. The increasing demand for the services of the old bureau to test weights and measures sent for standardizing, the want of proper place and lack of space for the care and use of the standards, led Congress to appropriate the above amount to erect and equip a suitable building for the needs of this department. In this movement, the United States has but followed the example of France, England, Germany, and other European countries, where already, buildings and equipments for the same purpose have been provided. Uniform weights and measures are as essential in the commercial world as uniform currency; yet the existing condition throughout the country is, that our measures of capacity differ widely and our weights are most unreliable. One has only to notice the peck

and half-bushel in common use to note non-uniformity of shape, and to measure a few of them to find a wide range in capacity. Recent tests, in this State and others, of our dry measures show a difference of capacity in the half bushels in common use, varying from 1075.21 cubic inches, the true measure, to as low as 967.85 cubic inches; while the peck measures varied from 537.60 cubic inches, the true measure, to 463.45 cubic inches. The so-called bushel baskets when tested were found to hold from three pecks to as much as one and one-half bushels. Few scales weigh the same. The mere fact that the grocer's scales tip at the pound mark is no test that a pound of groceries has been weighed on the scales. The farmer who sells his cattle, weighing them upon the so-called standard scales, knows that he is getting weight only in proportion to what the next man will get who uses the same scales.

We have grown accustomed to think that a little shortage is too small an item to concern us; but the farmer who refused to accept the weights on the scale of a certain cattle buyer, and who found his eight head of cattle gained over three hundred pounds on a neighboring scale, took fifteen dollars from the profit of the cattleman and placed it to his own credit. A pound of coffee weighed on ten different scales in public use varied from fourteen ounces to seventeen ounces.

The fault of this variation in our weights and measures may in some cases be due to the dishonest dealer, but more frequently the dealer is in total ignorance of the fact that his scales and measures, if wrong, are at fault. The average merchant would prefer honest competition and is injured by the merchant who is able to advertise twenty pounds of sugar for \$1, but sells from scales which weigh out only nineteen pounds. The laws of the State of Kansas are meant to remedy these defects, but they are incomplete and have never been enforced to any extent. The General Statutes of the State of Kansas, 1897, Vol. 2., provides, in Sections 1, 2, and 3, that the chancellor of the State University, shall be State sealer of weights and measures, and that he shall try and prove all measures and weights sent to him from the various counties, and on finding the same correct shall stamp same with the letter (K), with a seal kept for that purpose. Sections 4 and 5 provide that the county clerk of each county shall keep a set of tested standards and shall test and seal all weights and measures brought to them for that purpose. Section 8 fixes the fine at not

more than \$20 for each offense of selling by any other measure or weight than the standard.

The above laws were intended to bring our weights and measures into uniformity, but seem to be wanting in several necessary clauses. No clause states how this set of standards shall be provided for the counties, nor is there any clause compelling county clerks to procure the standards. No clause compels the owner to bring the weights and measures to the county clerk to be tested, nor to empower any person to make the test save upon demand of the owner. If a clause were enacted making it an offense to sell by any weight or from any measure save such as were properly sealed, it would help bring the law more nearly to the fulfillment of its purpose.

Every scale for public use should have beside it a test weight, varying in size according to the capacity of scale, in order that any person might at pleasure test the accuracy of the scale used. Why should the merchant think the buyer mistrusted him in thus checking his scales any more than if he count the change returned from the bill he handed the merchant?

A county clerk, when asked for the measurement of the standard half-bushel, replied: "I do not have the standards, and I do not suppose that there are six counties in the State that possess them. The law is a dead letter." Why? Why should the buyer be compelled to pay for merchandise in the authorized coin of his country and receive questionable measure?

It may be that our new national bureau will see fit to devise some method of regulating and establishing uniformity; as sealing all weights and measures before they are sent out by the manufacturer. If the department will undertake this, a vast field of usefulness is open to it.

J. O. HAMILTON.

THE RELATION OF LOGIC TO MENTAL AND MATERIAL PROGRESS.

THE Greeks were the first great thinkers. Shut up in their narrow domain, with considerable leisure and a disposition toward mental gymnastics, they naturally developed remarkable brain power. Their love of disputation, and the necessity for it, too—for every freeman was likely to be called upon to defend his property rights by means of his own skill in debate—easily gave this development a decidedly logical trend. It is not at all strange,

then, that these conditions produced the great and profound logician, Aristotle, who was the founder of deductive logic and the author of the syllogism as it is used to day. In this work, and in his writings setting forth the laws to which all valid reasoning must conform, he set a pattern for the thinking ages.

Although they seem to have wasted the greater portion of their time, the Schoolmen, during the Middle Ages, undoubtedly contributed much to the world's progress by reason of their efforts to secure clear and exact definitions and in their analysis of all possible kinds of argument. Scholasticism also taught the world much indirectly by the failure of its claim that logic could furnish a complete instrument of knowledge as well as an infallible standard for distinguishing error from truth.

Scholasticism and its various offspring, all teaching by authority and promulgating a multitude of forms of doctrinal dogma, prepared the way for Bacon and his inductive method of reasoning. Although his great work was accomplished at about the close of the sixteenth century, thinking men were slow to get his point of view. Locke, Newton and Herschel caught his idea and developed it further. Finally John Stuart Mill came forward with the first text-book on logic (1843), which is a pretty good authority on induction to-day. These formulated methods as given by Bacon and Mill have become substantially the methods of modern research; and, as a result, we are now living in a remarkable scientific age.

But what claims can reasonably be made as to the benefits to be derived from the study of logic in the collegiate course? It seems to me that those given below are not extravagant.

1. The study of logic should enable the student to think more clearly and to express his thought, whether oral or written, in a more lucid manner.

2. It should enable him more readily to detect the erroneous statements of others, whether made by design or through ignorance.

3. It should imbue him more fully with the scientific spirit, which is the guiding principle of human progress to day.

4. It should, above all, lead him into habits of systematic, scientific method of work of whatever character he may undertake, and thereby aid his success and further his material interests generally.

W. A. MCKEEVER.

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LOCAL NOTES.

The new literary society of this College, the fifth of the institution, will be known as the Franklin.

Professors Goodell and McKeever spent Monday last week visiting at the State University, at Lawrence.

State Senator Elwin Taylor, of Elwardsville, Wyandotte county, was a welcome visitor at College last Friday.

The Topeka *Capital* will be delivered to any part of College or the city by student John H. White, 431 Humboldt street.

The wood-work shop has just delivered a lot of over one hundred turned table legs to two Manhattan manufacturers.

The Engineering Department has nearly finished the rebuilding of a large air compressor for the Manhattan marble works.

H. W. Avery, '91, the well-known Percheron breeder of Wakefield, Clay county, visited College last Wednesday and looked over our herds.

President Nichols went to Topeka on Tuesday to attend a meeting of the State committee on educational exhibits for the coming world's exposition at St. Louis.

The Chemical Department has received a consignment of very handsome sections for a Macey bookcase, including bases and tops. The lot consists of thirty-three sections.

The floor of the cheese-cellar of Agricultural Hall received its long-needed concrete floor last week. The work was done by Contractor Berry, of the new Physical-Science building.

Farmers' Bulletin No. 134, on "Tree Planting on Rural School Grounds," has just been received and was written by W. L. Hall, '98, assistant superintendent tree planting, bureau of forestry. Mr. Hall will be remembered as our efficient assistant in horticulture in '98 and '99.

The following farmers' institutes have been arranged for the month of February: January 31 and February 1, Overbrook, Professor Otis and Mrs. Calvin; February 1, Junction City, Professor Popenoe; February 5 and 6, Arkansas City, Professor McIntyre and Instructor Kinsley; February 5 and 6, Vernon, Professor Dickens and Miss Minis; February 19 and 20, Marysville, Professors Willard and Popenoe.

The course lecture on Saturday evening in College chapel was well attended and well received.

Governor Stanley expects to be present at the Editorial Association meeting this week. He will be the guest of President and Mrs. Nichols.

State Senator E. Porter, of Pittsburg, Kan., visited Manhattan and the College last Tuesday in company with his sister-in law, Professor Mary E. Berry, of the English Department.

Friends of Miss Josephine Harper, who was taken to Christ's hospital in Topeka two weeks ago, will be glad to learn that no operation was necessary and that her condition is improved.

The annual meeting of the Kansas Dairy Association which is to be held at this College March 4 to 7 promises to become the best ever held by the association. The program is not published as yet, but the speakers promised by the committee are without exception prominent experts in special lines or practical dairymen of known repute. If the weather will favor the meeting Manhattan may expect to see several hundred creamerymen and farmers here during the week.

The Agricultural College consumed 251,000 gallons of water from the Manhattan water works during the last three months of last year. At 92 $\frac{2}{3}$ cents per 1000 cubic feet, the present rate paid by the College, this quantity of water will cost something over \$300, and if there are a thousand students and teachers in daily attendance, it means the consumption per person of 251 gallons per three months, of nearly three gallons per day, or of about 1000 gallons per year.

Persons who wish to compete for positions in the agricultural department, Washington, D. C., should at once apply to the United States civil service commission for application forms 304 and 375, and a copy of the Manual of Examinations. The department desires to establish "eligible registers" for a number of positions, such as food microscopist, road material expert, assistant in plant pathology, meat inspector, etc. There will also be required by the department a number of teachers of agricultural branches who are willing to go to the Philippine Islands and teach the goo-goo's how to farm.

Some time ago the INDUSTRIALIST spoke of a plan by the Dairy Department to obtain ten good milk cows for \$50 a head. The cows were to be bought in different parts of the State by representative farmers and were to be judged by the judging classes in March. Four of the cows have arrived and the remaining six are expected next week. The buyers of the four cows now here are S. C. Cowles, of Sibley, Douglas county; M. L. Dickson, of Edgerton, Johnson county; S. A. Johnson, of Cleveland, Kingman county, and E. Elsasser, of Industry, Dickinson county. The animals are well-formed, promising milkers that will be hard to beat.

Bulletin No. 106, of the College Experiment Station, has just been received from the State printer. It is issued by the Horticultural Department and contains an interesting report on the experimental apple orchard. Its seven full-page half-tone engravings are perfect beauties.

The Farm Department has lately received an interesting curiosity from Mexico—a genuine, old fashioned wooden plow of home made pattern that has been used down there since the golden days of Montezuma. The plow is a present by Mr. Haney, a former assistant in the Farm Department.

The cold weather during the past two weeks has caused less lung trouble among the students than usual. There have been almost no cases of severe colds among the eleven hundred students present. A Manhattan doctor to whom we made the above statement said he ascribed it to the improved condition of the student boarding-houses, most of which were kept well warmed night and day during the cold spell.

Professor Henry, of Wisconsin State Agricultural College, stated before the Kansas State Board of Agriculture that the professors of this College were greatly overworked. A glance at the winter term program published in the INDUSTRIALIST last week will prove the gentleman's statement. The professor of Agriculture, for instance, teaches thirty hours (fifty-minute periods) per week. Very few instructors teach less than twenty hours per week, besides doing large amounts of exacting experimental work, committee work, lecturing, and directing.

The oratorical contest between the four literary societies of the College, on the evening of January 25 in chapel, was a spirited one. The contestants selected by the societies were: Alpha Beta, W. H. Spencer; Webster, Alexis J. Reed; Hamilton, L. A. Fitz; Ionians, Clara Pancake. The judges for the contest were Professor Cartwright, of Washburn College; Miss Scott, of Baker University; and Professor Edgerton, of the Manhattan city schools. The first place was given to the Ionians, the second to the Websters, the third to the Hamiltons, and the fourth to the Alpha Betas. The contest was interesting and well attended, and the music good.

Cyrus Townsend Brady, formerly pastor of St. Paul's Episcopal church of this city, is the author of a very interesting story published in February *Scribner's*. The scene is laid here in Manhattan and the story starts out with the marriage of a young couple, both graduates of the Agricultural College, who are married at the Episcopal church and start in a covered wagon for their farm in Cimarron. The story is entitled "In Oklahoma," and tells of the hardships and disasters met by this young couple during the five year's drought, and finally of their trip to the Strip, the breaking of the husband's arm, the wife's run for a town lot in Guthrie, and the husband's trials and success.—*Mercury*.

The members of the Faculty of the two agricultural departments over in Agricultural Hall feel rather forlorn and fractional this week, their "better halves" having gone on visits to different parts of the country. We hope that their grass-widowerhood will not be unduly prolonged during these damp carnival days.

Instructor W. D. Cramer, the newly elected assistant in zoölogy, is a graduate of the high school, of Sparta, Mich., and the Michigan State Normal College (1893) where he has also taken a post-graduate course in geology. He is the holder of a life diploma in that state, and has taught natural science at the Michigan Normal and in other places for nine years. Mr. Cramer comes to us well recommended and is taking hold of his work at this College with commendable energy.

ALUMNI AND FORMER STUDENTS.

Harry C. Turner, '01, has been employed to teach at Greene, in Clay county. He has been granted a certificate by the State Board of Education.

The superintendent of documents reports that during last year more copies of the book on the Angora goat were disposed of than any other government document sold by him. This book is the handiwork of George F. Thompson, editor of the bureau of animal industry, department of agriculture, and formerly of the State Agricultural College at Manhattan [third year student and Superintendent of Printing].—*Washington dispatch*.

Dr. H. S. Willard ['89] and Miss Georgie Brooks [second year, 1897], whose marriage was announced last week, were married in Trinity Episcopal church at Kansas City, Mo., at six o'clock Wednesday evening [January 22] by Reverend Talbot. The only ones present were Miss Brooks' sister, Mrs. Hess, and Mr. Hess. They had a wedding dinner at the Baltimore and returned to Manhattan, where they are at home to their friends at No. 324 Houston street. No one in Manhattan has more friends than Mrs. Willard. Doctor Willard is a popular and successful business man and a skilled physician. They have been almost overwhelmed with congratulations and good wishes.—*Nationalist*.

M. A. Carleton ['87], formerly of Manhattan, but now cerealist for the department of agriculture, returned this week after spending six weeks on the experimental wheat farms in Oklahoma, Texas, Kansas, and North Dakota. At nearly all of the experimental farms he found that the severe winter, together with the drought, has injured the wheat to a considerable extent, but he says the wheats which are acclimated have suffered to the same extent, and consequently it doesn't indicate a weak point in the macaroni wheats. At Fargo, N. D., he attended a convention of farmers where three thousand were gathered to hear his discussion of the introduction of Russian wheats into the United States.—*Washington dispatch*.

Program Kansas State Editorial Association.

Manhattan, Kansas, Monday and Tuesday, February 3 and 4, 1902

+ + +

Monday, February 3.

Meeting of Executive Committee to receive and pass upon applications for membership and other matters.

COMMERCIAL CLUB HALL, 2 O'CLOCK.

Appointment of Committees. Appointment of Historian.
President's Address.

The Country Publisher as an Historian, - - - Grant Harrington
Democrat, Hiawatha.

Discussion.—John P. Gilmore, *Citizen*, Fredonia; W. E. Blackburn, *Republican*, Anthony; F. M. Hartley, *Democrat*, Arkansas City.

Simply a Suggestion, - - - C. A. Kimball
Register, Courtland.

Discussion.—W. A. Mitchell, *Mirror*, Olathe; W. M. Jones, *Commercial*, Cedarvale; E. G. Nettleton, *Gazette*, Hutchinson.

OPERA-HOUSE, 7:30 O'CLOCK.

Address of Welcome. Response by President.

Address, - - - Music.
Gazette, Emporia. William Allen White

Music.

Adjournment to Commercial Club Hall for general reception and good time.

Tuesday, February 4.

The entire morning will be devoted to the Agricultural College where the editors will be taken in carriages by the people of Manhattan.

OPERA-HOUSE, 1:30 O'CLOCK.

Some Things That Need Fixing, - - - J. E. House
Capital, Topeka.

Discussion.—S. H. Dodge, *Gazette*, Beloit; Clyde McManigal, *Commercial*, Horton; Frank Fockele, *Reporter*, Le Roy.

The Possibilities of a Tri-weekly Under the Rural Route System, E. G. Pipp
Chronicle, Burlingame.

Discussion.—D. T. Armstrong, *Beacon*, Great Bend; Ewing Herbert, *World*, Hiawatha; E. A. Wasser, *Press*, Girard.

How Shall the Official and County Printing be Awarded? J. Frank Smith
Observer, Pleasanton.

Discussion.—C. C. Painter, *Index*, Medicine Lodge; W. L. Chambers, *Record*, Stockton; W. D. Greason, *Republican*, Paola.

COMMERCIAL CLUB HALL, 7:30 O'CLOCK.

Second-class Mail-matter, - - - Mrs. Annie L. Diggs
Advocate, Topeka.

Discussion.—R. A. Anthony, *Times*, Leavenworth; S. A. Jones, *Call*, Beloit; Alvah Sheldon, *Times*, Eldorado.

A Must, - - - Victor Murdock
Eagle, Wichita.

Discussion.—M. M. Beck, *Recorder*, Holton; J. B. Fugate, *Journal*, Newton; Thos. Morgan, *Times*, Ottawa.

Twenty-five Years of Newspaper Enterprise, - - - Geo. W. Martin
Secretary State Historical Society, Topeka.

Question Box, - - - Conducted by D. A. Valentine
Times, Clay Center.



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THE INDUSTRIALIST



ISSUED WEEKLY BY

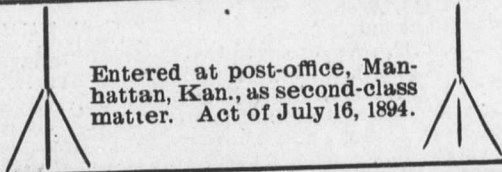
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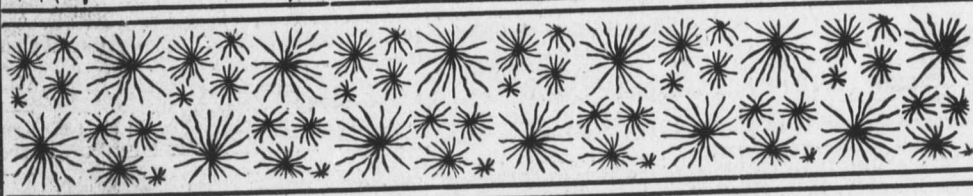
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| <i>Local Editor,</i> | - - | <i>Prof. J. D. Walters</i> |
| <i>Alumni and Former Students,</i> | | <i>Prof. J. T. Willard</i> |



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THE INDUSTRIALIST.

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MANHATTAN, KAN., FEBRUARY 11, 1902.

No. 17

TRISECTION OF AN ANGLE.

THREE problems in elementary geometry, brief in statement and easy of conception, have acquired an extraordinary celebrity among mathematicians on account of long-continued fruitless efforts toward their solution. These problems are the squaring of the circle, the duplication of the cube, and the trisection of the angle. They have commanded the attention of nearly all the great mathematicians for over two thousand years, and not until comparatively recent times has their insolubility by elementary methods, viz., by use of straight-edge and compass, been demonstrated. The futility of past endeavors has created in the minds of aspiring geometers a sort of fascination for the objects of attack which has scarcely been allayed by the announcement of the advanced character of the problems. Indeed, the attitude of a large number of the recent seekers after truth in this direction is well indicated by the remark credited to one of them, "Only prove to me that it is impossible and I will set about it immediately." Every few months it is heralded through the newspapers that some sixteen-year-old school girl has reached the coveted goal. We may set at naught all such announcements, however. The case is not like that of the two-minute horse and other once supposed impossible performances. The situation is this, that mathematicians *know* their limitations in the matter.

Of the three problems, that of the trisection of an angle is the simplest in conception. The bisection of an angle is one of the easiest problems in geometry. Its solution is familiar to any boy who has studied geometry a few months. The trisection of an angle, however, presents unexpected difficulties. Special values of the angle admit of an easy solution. For instance a right angle is readily divided into three equal parts. The ancient Greeks were unable to solve the general case by the use of straight lines and circles, and modern analysis has shown the problem incapable of an elementary solution.

We consider first why the problem is beyond the province of elementary geometry.

Let $\angle DCR$ be any angle, and let the angle $\angle HCR$ be one third of it. Represent the angle $\angle HCR$ by a . Let S be the sine of the given angle, and let X be the sine of the angle a .

Now, from trigonometry we have:

$$\begin{aligned}\sin(a+b) &= \sin a \cos b + \cos a \sin b, \\ \text{and } \cos(a+b) &= \cos a \cos b - \sin a \sin b \\ \text{making } b &= a, \\ \sin 2a &= 2\sin a \cos a, \\ \text{and } \cos 2a &= \cos^2 a - \sin^2 a \\ \text{making } b &= 2a, \\ \sin 3a &= \sin a \cos 2a + \cos a \sin 2a \\ &= \sin a (\cos^2 a - \sin^2 a) + \\ &\quad \cos a (2\sin a \cos a) \\ &= \sin a \cos^2 a - \sin^3 a + 2\sin a \cos^2 a \\ &= \sin a (3\cos^2 a - \sin^2 a) \\ &= \sin a (3 - 4\sin^2 a) \\ &= 3\sin a - 4\sin^3 a\end{aligned}$$

By substitution we now have:

$$\begin{aligned}S &= X(3\cos^2 a - \sin^2 a) \\ &= X(3 - 3\sin^2 a - \sin^2 a) = X(3 - 4X^2) \\ \text{or } 4X^3 &= 3X - S\end{aligned}$$

Hence it is clear that from the standpoint of analysis the trisection of an angle demands the solution of a cubic equation. But a

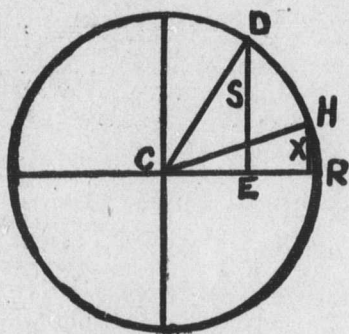


FIG. 1.

construction by means of straight lines and circles whose equations are of the first and second degree, respectively, cannot be equivalent to the solution of a cubic equation. The conclusion follows that the trisection of angle transcends elementary geometry. By the use of the conic sections, however, the problem is readily solved in various ways.

Pappus, a Greek mathematician who taught at Alexandria about the end of the third century, has given the following interesting reduction of the problem. "Since we can trisect a right angle," says Pappus, "it follows that the trisection of any angle can be effected if we can trisect an acute angle."

Let $\angle ABG$ be the given acute angle which it is required to trisect.

From any point A on the line AB , which forms one leg of the given angle, let fall a perpendicular AG on the other leg, and complete the rectangle $AGBD$.

Suppose now that the problem is solved, and that a line is drawn making with BG an angle which is the third part of the given angle $\angle ABG$; let this line cut AG in Z , and be produced until it meet DA

produced in the point E . Let the straight line ZE be bisected in H , and A joined with H ; then the lines ZH , HE , AH and BA are all

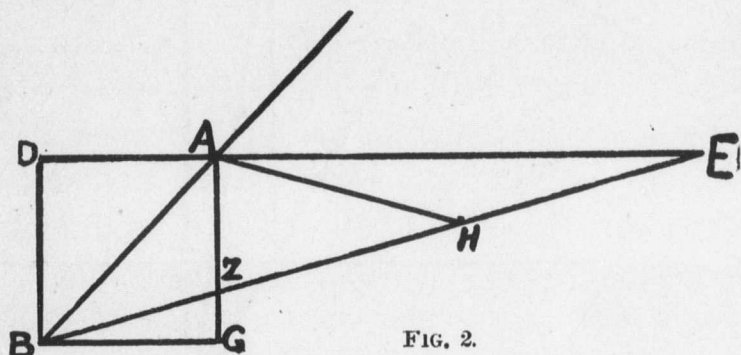


FIG. 2.

evidently equal to each other and, therefore, the line ZE is double the line AB , which is known.

The problem of the trisection of an angle is thus reduced to another:

From any vertex of a rectangle $BDAG$ draw a line BE , so that the part ZE of it intercepted between the two opposite sides, one of which is produced, shall be equal to a given line.

The problem in its reduced form, however, is just as far beyond the reach of elementary geometry as the problem in its original form. This reduction, as well as many another, has withstood the most vigorous assaults of mathematicians in harmony with the now known fact that Euclidean geometry is incompetent to solve the problem.

Although the Greeks failed in overcoming the direct object of attack, their efforts were partially rewarded by the discovery of several curves of higher order capable of mechanical construction, and some of them affording a solution of the trisection problem.

One of these curves is known as the conchoid of Nicomedes. It is defined as the locus of a point in a line which revolves on and slides in a fixed pivot so as to allow a constant portion of the line to project beyond a fixed right line. The word signifies shell-like and the form of the curve justifies its name. The following figure shows how to trisect an angle by the aid of the conchoid.

Hence, if the angle ECP be given, and it be required to divide it in any given ratio, say one to two, it is sufficient to divide CH in that ratio at D , and draw the line DP' ; then CP' will divide ECP in the required ratio.

Hippias devised an instrument with which he could construct the quadratrix mechanically, but geometers have always objected, in case of problems having an elementary appearance, to all constructions which involve the use of any mathematical instruments except a ruler and a pair of compasses.

Some one has truly said that no subject loses more than mathematics in an attempt to dissociate it from its history. If the present army of circle squarers and angle trisectors would give heed to the historical side of their problems the number of false prophets in these later days would be diminished. These problems of the centuries, though unsolved and unsolvable, have served a useful purpose in stimulating discoveries in other fields, in making mathematicians aware of their limitations, and in rendering most effective aid toward the splendid development of modern analysis.

B. L. REMICK.

AIR AND OTHER GASES.

OUR earth, as it moves in its orbit about the sun, consists not only of solid and liquid matter, but includes many millions of tons of invisible gaseous matter—our common air. Naturally, this kind of matter is outside of the denser solid globe, but is none the less really a part of our planet and essential in any systematic study of our surroundings. We live at the bottom of this gaseous material, just where it joins the solid materials; and yet there are people, even in our colleges, who do not realize the reality of this material about us and above us, largely because they cannot see it. We have certainly learned in the progress of science that many “unseen things” are real, and doubtless we shall learn more along this line of the unseen things as we increase in our knowledge and in our methods of investigation.

First of all let us consider a few methods for determining the weight of the atmospheric air. Naturally, progress along this line depended on the discovery of the air pump and the possibility of having vessels emptied of air. In this way we arrive at the value of 1.293 grams as the weight of a litre of air under standard conditions (or about twenty grains per quart); and we can then use

this value as a basis of comparison for other gases, whether they are lighter than air or heavier than air. This also gives us some idea of the amount of air used in breathing or in supplying the "draught" of a fire if we know the numbers of cubic feet or litres of air required by the lungs for breathing, or by a stove. By such calculations it will be seen that the unseen air that we breathe and the unseen air required by the stove exceed many times the weight of the solid food we eat and the solid fuel we use in our stoves.

In discussing the weight of the air, still another problem is that of finding the total weight of the air overhead—per square unit of surface. This is accomplished by the barometer, which shows how high a liquid will stand above its own level if it is placed in a tube that is sealed at the upper end. In this way it is found that mercury stands about thirty inches above its own level and water more than thirty feet above its own level. This rise of a liquid above its own level depends on the pressure of the outside atmosphere and varies with it, so that we can easily see that the weight of the air is equal to the depth named of the liquids or is equivalent to twelve or thirteen feet of limestone overhead. The fact is generally stated as a pressure of fifteen pounds per square inch. Any one can determine by multiplication (by 144) what this means per square foot, and then find the total weight of the air per acre of area, per square mile, and for the total surface of the earth.

But these pressures, enormous as they seem, are not oppressive to the most delicately organized being. The properties of the air are so wonderfully adjusted, and all life is so adapted to this environment, that we suffer no inconvenience. Indeed, as I have already noted, many people are apparently devoid of any idea that the air is real and must be dealt with as a material.

In the second place, we will consider the relation of the air to plant and animal life. Without going into the details of chemistry, we may say that these appear to be complementary the one to the other. While one part of the air (oxygen) is generally spoken of as essential to life, another part of the air (carbon dioxide) is no less important to vegetable life. The former can combine with carbon from the tissues—which is, of course, indirectly the carbon in our foods—and furnish the heat energy needed by the living body. The other ingredient is already a compound and is pulled apart under the influence of chlorophyll

and sunlight so that carbohydrates may be formed by the plant, there to be ready for the use of man and other animals.

From these considerations it will be seen that our principal fuel, coal, represents an ingredient of the air taken from the air in prehistoric times by the luxuriant vegetation of the carboniferous period. And, conversely, as we burn coal the gas, carbon dioxide, is returned to the air.

In conclusion, the water vapor or moisture in ordinary air may serve to show the relations between the gaseous and the liquid conditions of matter. It is a well-known fact that water evaporates more or less and that this invisible ingredient of the air is most important to our comfort, and is also an important factor in climatic conditions. Other things being equal, the amount of evaporation increases with the temperature until we reach the "boiling point" of the liquid.

To get a more accurate idea of the amount of vapor in air at a given temperature we employ the term vapor tension. This vapor tension is estimated in comparison with the barometric column already described—the height of a column of mercury (either in inches or in millimetres). As the value of this vapor tension increases to thirty inches, or seven hundred sixty millimeters, it equals the atmospheric pressure and we have "boiling" or "ebullition," the vapor being able to drive out the air from any space over the liquid.

A thorough understanding of these relations between water vapor and liquid water will be sufficient to make the relation between air and "liquid air" easily intelligible, the main difference being that liquid air evaporates much more easily than liquid water. The boiling points of the materials differ by several hundred degrees.

GEO. F. WEIDA.

KANSAS COLLEGES ATHLETIC CONFERENCE.

RULE 1. No one shall participate in any intercollegiate game or athletic sport unless he be a *bona fide* student, doing full minimum work in a regular or special course, as defined in the curriculum of his college, and no student who has participated in any intercollegiate game as a member of the college team shall be permitted to play on the team of any other college during the succeeding season devoted to that game unless he has obtained a college academic degree or has completed the course in the preparatory department of a college.

RULE 2. No person shall be admitted to any intercollegiate contest who receives any gift, remuneration or pay for his services on the college team.

RULE 3. No student shall participate in a particular sport upon the teams of any college or colleges for more than six years in the aggregate, and any member of a college who plays during any part of an intercollegiate game does thereby participate in the sport for that year.

RULE 4. No student shall participate in any intercollegiate contest who has used, since January 1, 1902, or is using his knowledge of athletic skill for gain. No person who receives any compensation from a college or preparatory department for services rendered by way of regular instruction shall be allowed to play on any team.

RULE 5. No student shall play in any game under an assumed name.

RULE 6. No student shall be permitted to participate in any intercollegiate contest who is found by the faculty to be delinquent in his studies.

RULE 7. All intercollegiate games shall be played on grounds either owned or under the immediate control of one or both of the colleges participating in the contest, and all intercollegiate games shall be played under student management, and not under the control of any corporation, association, or private individual.

RULE 8. The election of managers and captains of teams shall be subject to the approval of the committee on athletics.

RULE 9. At least five days before any intercollegiate contest the respective chairmen of the athletic committees of the institutions concerned shall submit to each other a certified list of players eligible under the rules adopted to participate in said contest. It shall be the duty of the captains of the respective teams to exclude all players from the contest save those so certified.

RULE 10. Athletic committees shall require each candidate for a team to represent the college in intercollegiate contests to subscribe to a statement that he is eligible under the letter and spirit of these rules.

RULE 11. No person, having been a member of a college athletic team during any year and having been in attendance less than eighteen consecutive weeks, or the full spring term, if it be less than eighteen weeks, shall be permitted to play in any intercollegiate contest thereafter until he shall have been in attendance eighteen consecutive weeks.

THE INDUSTRIALIST.

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

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LOCAL NOTES.

Mid-term examinations, Saturday, February 15.

Professor Walters has treated his family with a new piano.

The College collection for the McKinley memorial fund amounted to \$30.05.

Mrs. S. B. McFarland returned from Olathe last week, after an extended visit there with friends.

The Kansas State Agricultural College needs an auditorium that will seat three thousand people.

The Kansas editors last week made President E. R. Nichols an honorary member of their association.

Student W. L. Milner delivers the *Kansas City Star* in any part of the city at 10 cents per week. Phone, 171.

Regent E. T. Fairchild is being mentioned for State superintendent of public instruction.—*Students' Herald*.

Doctor Orr and Professor Lantz went to Russell last week, where the doctor took a photograph of some prairie dogs that had been "hypnotized" by the professor.

The Y. M. C. A. has elected W. D. Banning and the Y. W. C. A. Miss Florence Wilbur as delegates to the international convention, which meets at Toronto, Canada, February 26 to March 2.

The annual meeting of the State Dairy Association will be held at this College on March 4 and continue three days. The *INDUSTRIALIST* expects to appear as a daily during the session.

Contractor Berry has resumed work on the new Physical-Science Hall. The cold spell retarded the work for about three weeks, but good building weather—Kansas weather—is again on the program.

J. E. Satterthwaite, foreman of the *Douglass Tribune*, was a welcome visitor at College during the editorial convention. Mr. Satterthwaite was formerly the foreman of the Printing Department of this College.

Prof. Frank Parsons, formerly professor of history at the K. S. A. C., has returned home from Europe where he has pursued extensive investigations of social conditions for the past several months, and is now in Washington, D. C.—*Mercury*.

The classes in chemistry of metals finished their work this week and commenced the study of organic chemistry.

The forty-first annual convention of the National Educational Association will be held at Minneapolis, Minn., July 7 to 11, 1902.

The Faculty at its regular meeting last Saturday unanimously adopted the new intercollegiate rules for athletics agreed upon by the representatives of Kansas colleges, at Topeka, last week. The rules will be found elsewhere in this number.

The new Union Pacific accommodation train passed through here for the first time at 11:35 Monday morning. The train carries the express, baggage and mail cars and two day coaches, and runs from Kansas City to Salina and return. It is due here at 4:25 P. M.

A dramatic recital will be given in the Manhattan opera house at 8 P. M. Friday, February 21, consisting of dramatic readings by S. A. King, of London University. The program is interspersed with music by Miss Lorena Helder and the Wagner Symphony Club. Seats 10 and 35 cents.

One of the editors, when he passed through the College creamery last week, was heard to remark: "The farmers in our section thought these professors who talked to them at the farmers' institute had never seen butter made or stock fed, but now I know better and I am going to tell them about it."

The Progressive Agricultural Club, at a meeting held on Saturday, February 1, elected the following officers for the ensuing year: President, C. King; vice-president, J. A. Showalter; secretary, E. N. Hall; treasurer, J. G. Guise; marshal, P. E. Salter; corresponding secretary, V. E. Hanson.

The committees on mines and mining, of Congress, are considering the question of endowing a school of mining engineering in each state. As the session is well advanced and the members of the committees are far apart in their views as to where the aid should go, the bill is not likely to become a law at this session, but there is every probability that it will pass before long.

President Nichols went to Topeka on February 1, to attend an athletic convention called for the purpose of adopting a set of uniform rules to govern intercollegiate athletics. The conference decided that no one could play on a college team except *bona fide* students, and further, that a man who played with one college one year cannot play with another next year unless he has finished his degree. There were seven colleges represented at the conference by the following: Pres. E. R. Nichols, State Agricultural College; Prof. Vivian Hemmon, Lindsborg; Prof. W. A. Harsberger, Washburn; Pres. J. D. S. Riggs, Ottawa; Prof. E. M. Carney, State Normal; Prof. C. S. Parmenter, Baker; Prof. M. W. Sterling, Kansas University. All the other colleges will be invited to join and conform to the rules of the conference.

Poultry keepers should read the program of the institute for poultry men, published on the last page of this number of the INDUSTRIALIST. We expect several hundred persons, old and young, from all parts of the State to attend these lectures and demonstrations. The Farm Department will have a number of incubators and brooders in different stages of operation during the week. All instruction will be entirely free. Come!

The prairie dog is doomed. Prof. D. E. Lantz has been kept so busy during the past few weeks answering letters of inquiry and mailing his poison mixtures that he had to get Prof. G. H. Failyer to assist him in preparing the compound. Requests for cans of the preparation are pouring in from all parts of western Kansas. One county ordered a hundred half gallon cans, each of them capable of poisoning the members of one thousand to twelve hundred dog families.

The biggest thing in Manhattan is the Agricultural College, where the editors were entertained Tuesday morning. A volume might be written about the institution. There are three or four things, however, that are especially noticeable to the casual visitor. The thing that impresses itself most forcibly is the personnel of the student body. There is a too general belief in Kansas that the State Agricultural College is a "jky" institution. That opinion is not only erroneous, but it is doubtless keeping students out of the school. The student body at Manhattan is as well dressed, as intelligent and refined, and it pays as much attention to the little niceties of life that go with culture and a rising civilization, as the students one sees about the campus and in the halls of the University of Chicago. The school needs a new printing-office badly. The superintendent of printing is trying to teach the rudiments of the art with an equipment that is little superior to that employed in printing the *Topeka State Ledger*. The presses look as though they were brought to Kansas coincident with the promulgation of the Lecompton constitution. The type is old and worn, and much of it is of the vintage of the late seventies. The greenhouse plants and shrubs—a most remarkable and instructive collection, by the way—are housed in a building that couldn't hold a job as a cow barn on a well-regulated farm in Kansas. The next legislature should look after the printing-office and the greenhouse.—*Topeka Capital*.

Dr. N. S. Mayo has lately written a book on "The Care of Stock" that ought to become a handbook in the library of every farmer and stockman in the country. It is a concise, practical treatise on the care of sick and injured stock, especially designed to meet the needs of farmers and stockowners generally. It describes the structure of the animal body and deals with the general care, feeding, exercise and hygienic conditions that promote the health of domestic animals, the general appearance of animals in health and disease and the various symptoms by which diseases are recognized. All the common diseases of domestic animals are described, with their causes and symptoms, together

with means of prevention and treatment. Special attention is given to good nursing and the use of domestic remedies in the treatment of disease. Subjects that are given special prominence are the treatment of wounds, minor surgery, diseases due to improper food and feeding, contagious and parasitic diseases, with directions for disinfecting. Other important subjects are the care of animals during pregnancy and birth of the young, with treatment for the accidents and diseases associated with these conditions. A chapter is devoted to the weaning, breaking, training and handling of colts and horses, the various unsoundnesses and vices, how they are recognized, together with the question of warranty. The work is being published by the well-known firm, MacMillan Company, New York, and will be issued in the Rural Science Series.

The Kansas editors, who held their annual meeting here last week, have come and gone. The meeting was well attended and the many old members present pronounced it the best since the association was organized twenty-six years ago, also at Manhattan. The Agricultural College came in for a full share of attention. The editors visited its chapel, class-rooms, shops and barns in a motley procession on Tuesday forenoon and spoke of it approvingly at every opportunity at the Commercial Club rooms. Governor Stanley, who was present, made a short address in the College chapel, followed by short talks from Col. D. R. Anthony and the president of the association, Gomer T. Davies. To many of the members who had not been at the institution before, the well-disciplined student body and their busy, practical work in the shops and laboratories were revelations. Hon. E. W. Hoch expressed the belief that "the College would not suffer by the fact of the meeting." Grant W. Harrington remarked: "We came here and found twelve hundred bright, young people at work, and now speak of the institution as 'our' College—not as the Kansas State Agricultural College." Alvah Shelden said: "I wish to express appreciation for the very cordial way in which we have been treated. We consider the people of El Dorado a fine people, but we will now claim kin with the Manhattan citizens. We were surprised at the work of the College and now see the wisdom of the citizens in their wish to bring the meeting here." Mrs. Annie L. Diggs said: "While some of the members were surprised at the work of the College and the reception of the association, I was not—I have been here before. It is a delightful place—a glorious institution." Ewing Herbert stated feelingly: "When I saw the young men in the industrial departments, I regretted that I didn't have the chance." Col. D. R. Anthony remarked: "We love the people of Manhattan. The sights at the College are grand and the work wonderful." J. I. Gabel said: "The citizens of Holton feel proud of the Kansas State Agricultural College, and now that we know more about the College, we shall tell our people of it." President Gomer Davies spoke of the College as a grand modern institution, and complimented the College band by saying it was a "dandy."

The College battery did themselves proud on the campus in front of the Main building on Tuesday morning when the governor and the editors hove in sight. The veteran editor, D. R. Anthony, remarked that the old College four-pounders reminded him of the Leavenworth "Kickapoo," which has proclaimed the Fourth of July and St. Patrick's day to his Leavenworth neighbors ever since the days of Jim Lane and his compatriots. The United States war department ought to present the boys with a battery of bright and modern breech loaders.

ALUMNI AND FORMER STUDENTS.

A. C. Smith, '97, and Mary Waugh-Smith, '98, are happy in the birth of a daughter.

At a recent reception given by W. L. Hall, '98, and Gertrude Lyman Hall, '97, over twenty former students or officers of the College who are now employed in Washington were present. The reception was in honor of Mrs. Mary Lyman Otis, '94, who is spending the winter with her sister.

The February issue of the *Popular Science Monthly* contains an article on "Winged Reptiles," by Dr. S. W. Williston, '72, professor of paleontology in the University of Kansas. Doctor Williston is preparing an extensive work on American plesiosaurs, an extinct order of swimming reptiles, for publication as a monograph by the United States Geological Survey.

Among the editors attending the recent meeting of the editorial association at this place were the following former students: A. B. Kimball, '89, *Journal*, Scandia; C. A. Kimball, '93, *Register*, Courtland; F. J. Smith, '95, *Reformer*, Russell; W. C. Palmer, first year student, 1881, *Republican*, Jewell City; E. W. Coldren, second-year student, 1901, *Herald*, Oberlin.

Secretary Wilson has received a report from David G. Fairchild ['88], the expert of the department of agriculture who, with Mr. Lathrop, a wealthy New Yorker, is exploring the world for new plants for introduction into this country. The report is dated at Colombo, Ceylon. Mr. Fairchild went to Canton, China, in search of South Chinese peaches and plums, scions and trees, some of which he announces he has shipped here, together with some promising leitchees, bamboos and persimmons for California and Florida. He says producers and shippers in China and Japan are much interested in the final outcome of the experiments of this government in the home production of tea, but apparently are skeptical and believe the cost of picking too great for the industry to succeed here. "The growth of our agricultural as well as other exports to China," Mr. Fairchild predicts, "will be a phenomenal one and include many classes of canned and dried goods from our orchards, and preserved meats and dairy products from our farms and ranches.—*Washington dispatch*."

POULTRY WEEK.

**Kansas State Agricultural College, Manhattan, Kansas,
February 17 to 22, 1902.**

JUDGING.—Judge C. H. Rhodes, of Topeka, will give instruction every afternoon in scoring and judging poultry. A large number of chickens of the leading breeds will be loaned by Manhattan fanciers for the work.

MORNING SESSIONS.—Each forenoon will be devoted to a Poultry Institute, with papers, addresses and discussions by leading poultrymen of the State.

PROGRAM.

| | | |
|---|---|----------------------|
| Artificial Incubating (illustrated by three incubators hatch- ing), | - - - - - | Mrs. J. W. Pinkerton |
| | Clay Center. | |
| Hatching with Hens, | - - - - - | Capt. J. T. Smith |
| | Manhattan. | |
| From Eggs to Market, | - - - - - | Judge L. P. Harris |
| | Clay Center, Neb. | |
| Brooder Chicks, | - - - - - | W. A. Lamb |
| | Manhattan. | |
| Raising Chicks with Hens, | - - - - - | Mrs. S. Koppenhaffer |
| | Manhattan. | |
| Feeding for Exhibition—From Shell to Judge, | - - - - - | Chas. Steinberger |
| | Wa Keeney. | |
| Intelligent Poultry Feeding, | - - - - - | Henry E. Moss |
| | Kansas City. | |
| Feeding for Winter Eggs, | - - - - - | Alex. Howell |
| | Manhattan. | |
| A Woman's Experience with Chickens on the Farm, | - - - - - | Mrs. J. T. Heil |
| | Wamego. | |
| The Hen, | - - - - - | Thos. Parker |
| | Hutchinson. | |
| To what Extent can Poultry Raising be made Profitable on the Farm, | - - - - - | Mrs. A. J. Pottorf |
| | Riley. | |
| Fattening and Marketing Poultry, | - - - - - | James Herbert |
| | Manhattan. | |
| Fitting for the Show, | - - - - - | M. L. Canfield |
| | Belleville. | |
| Breeding and Mating, | - - - - - | C. C. Smith |
| | Topeka. | |
| Poultry Diseases, | - - - - - | S. J. Norton |
| | Manhattan. | |
| Moulting, | - - - - - | B. W. Smith |
| | Manhattan. | |
| Chalk Talk, | - - - - - | Prof. J. D. Walters |
| | State Agricultural College. | |
| Poultry Accessories (illustrated with model appliances in ac- tual use), | - - - - - | Dr. S. D. Ross |
| | Manhattan. | |
| Raising Turkeys—From Eggs to Market, | - - - - - | J. W. White |
| | Salina. | |
| Raising Water Fowls, | - - - - - | H. E. Moss |
| | Kansas City. | |
| Question Box, | - - - - - | Geo. H. Gillies |
| | Editor <i>Illustrated Poultry Gazette</i> . | |

The Question Box will be opened at each session and you are invited to ask any questions on poultry raising upon which you wish information.

All the work of the entire week will be free, and every one interested in any way in poultry is invited to attend.

Exhibits of incubators, green bone cutters, nests, feeds, poultry fencing, etc., etc.